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A MANUAL

OF

OSTEOPATHIC GYNECOLOGY.

BY

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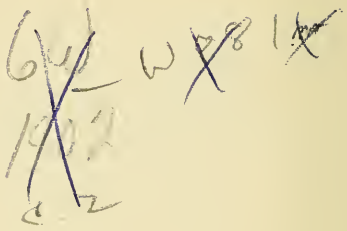

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PREFACE.

An effort has been made to present osteopathic gynecology to the student and practitioner in the most practical and helpful manner. All that is not in accord with the best osteopathic authority and with the known facts of anatomy, physiology, and pathology has been eliminated. From the authorities on these subjects many points of particular osteopathic interest hitherto not incorporated into osteopathic literature have been introduced.

The examination of a patient—oral, osteopathic, physical, and pelvic—is minutely described.

The osteopathic causes of female diseases are brought prominently forward, the symptoms are fully given, and the diagnosis of such diseases impressed upon the reader.

The treatment of each disease is complete, and is

that which is the outgrowth of experience and that which is dictated by scientific principles and common sense. A special chapter is devoted to local or intravaginal treatments, for the reason that they are of great benefit in the treatment of pelvic diseases and because osteopathic literature is lacking in regard to them. Particular attention is given to the method, force, frequency, and contraindications for such treatments.

Menstruation—its disorders, their cause and treatment—and the menopause and its management have received proper consideration.

This effort to add something of value for the benefit of the profession is respectfully submitted to the consideration of all legitimate osteopaths.

PERCY H. WOODALL, M.D., D.O.

CHAPTER I.

Anatomy.

Since we shall limit our consideration to the pelvic organs, the discussion will be confined to the structure of the pelvis and its contents. No detailed description will be attempted, but only those points of especial osteopathic significance will be commented upon.

The pelvic skeleton is formed of four bones—two ossa innominati, bounding it laterally and anteriorly, and the sacrum and coccyx, bounding it posteriorly. These four bones form four articulations with each other—two sacro-iliac, one pubic, and one sacro-coccygeal. They also form three articulations with other bones—two ilio-femoral and one lumbo-sacral.

The sacro-iliac articulations are amphiarthrodial joints, and are formed by the sloping auricular surfaces of the sacrum and of the ilium. Each of these surfaces is covered with cartilage; and it is a

significant fact that while these cartilages are in close contact, they are, as a rule, not united, and, in rare instances, are separated by small cavities containing a fluid resembling synovial fluid. The chief bond of union between the bones is the sacro-iliac and sacro-ischial ligaments. Of the sacro-iliac ligaments there are two—an anterior, consisting of thin ligamentous bands, connecting the anterior surfaces of the sacrum and ilium, and a posterior, composed of strong interlacing bands, uniting the rough posterior surface of the sacrum to the rough surface of the ilium behind the auricular surface. This ligament forms the strongest connection between these bones.

The sacro-ischial ligaments are the greater and the lesser sacro-sciatic. The greater sacro-sciatic ligament is continuous with the posterior sacro-iliac ligament, and unites the posterior surface and lateral margins of the sacrum and coccyx to the posterior inferior spine of the ilium and to the inner margin of the tuberosity and ramus of the ischium. This ligament is pierced by the coccygeal nerve and the coccygeal branch of the sciatic artery. The lesser sacro-sciatic ligament stretches across from the spine of the ischium to the lateral margins of the sacrum and coccyx, anterior to, and intermingled with, the fibers of the greater sacro-sciatic ligament.

These two ligaments convert the sacro-sciatic notches into foramina, the greater sacro-sciatic foramen being above the lesser ligament and the smaller below it. Through the greater sacro-sciatic foramen pass out the gluteal vessels, the superior gluteal nerve, the pyriformis muscle, the sciatic vessels and nerves, the internal pudic vessels and nerve, and muscular branches from the sacral plexus of nerves; through the lesser sacro-sciatic foramen the obturator externus muscle and its nerve pass out and the internal pudic vessels and nerve pass in. This articulation is supplemented by the erector spinae muscle posteriorly and by the psoas magnus anteriorly.

This joint, by reason of its sloping articular surfaces, its entirely ligamentous union, its mobility (which is so great in some cases during the latter months of pregnancy as to impede locomotion), and the part it has to bear in sustaining the weight of the body and the violence of shock in walking, in jumping, and in falls upon the feet, is very susceptible of subluxation, and should receive the closest attention in every examination. Its nerves are from the posterior-sacral and lumbo-sacral cords.

The pubic articulation is an amphiarthrodial joint, formed by the opposing surfaces of the pubic bones; an interpubic disc; anterior, posterior, superior, and subpubic ligaments.

The sacro=coccygeal articulation is a movable joint, formed by the apex of the sacrum and the base of the coccyx. It is supplied with anterior, posterior, lateral, and interarticular ligaments and a fibrocartilage. Many subdislocations occur at this joint. It is supplied by the fourth and fifth sacral nerves, the coccygeal, and probably the second and third sacral nerves.

The lumbo=sacral articulation is amphiarthrodial, and is formed by the fifth lumbar vertebra and the base of the sacrum. It is furnished with the ligaments common to the vertebral joints, and, in addition to these, has a lumbo-sacral and an ilio-lumbar ligament.

The lumbo-sacral ligament is continuous with the anterior sacro-iliac ligament, and passes outward and downward from the front part of the transverse process of the last lumbar vertebra to the lateral surface of the base of the sacrum.

The ilio-lumbar ligament connects the apex of the transverse process of the last lumbar vertebra to the crest of the ilium directly in front of the sacro-iliac articulation. This joint is supplied by the fourth and fifth lumbar nerves.

The ilio=femoral articulation, while it is not one of the so-called "pelvic articulations," is still very important to us, for the reason that it and the structures surrounding it are intimately connected with

the pelvic viscera through the lumbar and sacral plexuses of nerves. Because of this, disorders of this joint or the contiguous structures may reflexly seriously affect pelvic function. This is an enarthrodial joint, formed by the head of the femur and the acetabulum of the innominate bone. The joint is supplied with a capsular ligament, which, in broad terms, arises from the margin of the acetabulum and surrounds the neck of the femur below. Reinforcing this is the ilio-femoral, or Y-shaped ligament, which, arising from the anterior inferior spine of the ilium and descending like an inverted Y, is attached by one arm to the lower part of the anterior intertrochanteric line, while the other arm is attached to the upper part of this line and to the neck of the femur.

Besides these, there are the cotyloid ligament, forming a cartilaginous rim around the acetabulum, making it deeper; a transverse ligament, bridging across the cotyloid notch; and the ligamentum teres, arising from the cotyloid notch and attached to a depression on the head of the femur.

This joint is supplied by the obturator, the accessory obturator, the anterior crural, the great sciatic, and the nerves to the obturator internus and quadratus femoris muscles. These nerves receive filaments from the first lumbar to the third sacral nerves.

Of the muscles attached to the pelvic bones, three deserve particular attention—the pyriformis, the psoas magnus, and the levator ani.

The pyriformis assists in forming the posterior and outer wall of the pelvic cavity. It arises by three digitations from the anterior surface of the sacrum, from the ilium below the posterior inferior spine, and from the anterior surface of the great sacro-sciatic ligament. Passing out from the pelvis through the great sacro-sciatic foramen, it is inserted into the upper border of the great trochanter of the femur. The sacral plexus rests upon the anterior surface of this muscle. The anterior divisions of the sacral nerves going to form the sacral plexus pass between the digitations of the pyriformis and are subject to pressure in contracture of the muscle. It is also in close relationship with the internal pudic nerve, which passes out of the pelvis through the great sacro-sciatic foramen below the muscle.

The psoas magnus arises from the lumbar vertebrae, the last dorsal, and the lumbar intervertebral discs by five slips, which are connected to each other by tendinous arches. With the tendon of the iliacus it is inserted into the lesser trochanter of the femur. This muscle is deserving of special notice, since, passing beneath the tendinous arches, connecting its different slips, are the sympathetic

nerves, connecting the lumbar ganglia with the spinal nerves, and in the posterior portion of the muscle substance is placed the lumbar plexus. Contractures of this muscle are, therefore, of especial significance.

The levator ani with the coccygeus and the pelvic fascia, constitute the pelvic diaphragm, form a part of the floor of the pelvis, and aid in maintaining the pelvic organs in their proper position. This muscle arises from the posterior surface of the body and ramus of the os pubis, external to the symphysis; from the inner surface of the spine of the ischium; and between these points from the angle of division between the obturator and recto-vesical layers of the pelvic fasciae. The fibers from each side pass downward toward the median line. The anterior extend along the vagina, and are connected to it by connective tissue, but do not terminate in its walls. The middle portion of the muscle surrounds the rectum. Some fibers are inserted into it, others blend with those from the opposite side, while the most posterior fibers are inserted into the sides of the apex of the coccyx. The coccygeus muscle is behind the levator ani, and is continuous with it at its origin and insertion.

The pelvic fascia is a continuation of the iliac and transversalis fascia, and is attached along the brim of the pelvis and to the inner surface of the bone

along the origin of the obturator internus. Passing backward on each side, it covers the pyriformis and the sacral nerves until it reaches the front of the sacrum. Anteriorly it is attached along the origin of the obturator internus, assists in bounding the inner opening of the obturator canal, and at the lower part of the symphysis pubis is attached to the anterior pelvic wall. Between the lower part of the symphysis pubis and the spine of the ischium the fascia is thickened and whitish, forming the so-called "white line," which marks the insertion of the levator ani and the division of the fascia into three layers, two of which invest the muscle, while the third adheres to the pelvic wall and covers the obturator internus muscle and is called the "obturator fascia." The layer of fascia covering the levator ani is the recto-vesical fascia; the layer beneath the muscle is the ischio-rectal, or anal, fascia.

Lying on this fascia and beneath the peritoneum is a variable amount of loose connective tissue, which may be said to serve as a cushion for the viscera and a support for their blood vessels. This tissue is most abundant at the sides of the upper portion of the vagina and the cervix. It constitutes a large part of the uterine ligaments, and in it are a large number of blood vessels that are distended in any condition, causing pelvic congestion. This connective tissue is frequently the seat of inflam-

matory effusions and exudates, which may become organized and form cicatricial bands. Such bands are one of the most frequent causes of uterine displacements. When not of sufficient extent to cause displacements by their presence, they so constrict and impinge upon blood vessels and nerves as to disturb their function and cause other diseased conditions. These cicatricial bands, or adhesions, osteopathically considered, are of the greatest etiological significance.

The pelvic peritoneum is a continuation of that lining the abdominal cavity. Posteriorly it passes downward, covering the pyriformis muscle and the sacral nerves, and embraces the upper third of the rectum. Passing farther down, it covers the anterior surface of the middle third of the rectum, from which it passes to the floor of the pelvis and on to the upper part of the posterior surface of the vagina, forming, as it passes from the rectum to the vagina, Douglas' pouch. The peritoneum is now reflected over the uterus, covering all of its posterior surface and the anterior surface as far down as the cervico-uterine angle. The folds of peritoneum passing up over the posterior surface of the uterus and that covering the anterior surface, as they are reflected over the Fallopian tubes, form the broad ligaments. After leaving the uterus, the peritoneum passes to the bladder, covering its posterior and superior sur-

faces, from which it is reflected to the anterior abdominal walls.

The peritoneum is subject to inflammations, and its inflamed surfaces readily become adherent and form adhesions between the uterus and the surrounding viscera. These are a frequent source of displacement or other pathological condition.

The structures previously described are further strengthened by those of the perineal region, which comprises the tissues between the levator ani and the integument within the space bounded by the rami of the os pubis and ischium, the tuberosities of the ichii, the lower edge of the gluteus maximus muscle, and the tip of the coccyx. These tissues consist of integument, adipose tissue, and three layers of fascia, between which are found four pairs of muscles, besides blood vessels and nerves. Beneath the skin is found the usual layer of subcutaneous areolar and fatty tissue, which is continuous with that of neighboring parts. Next in order is the superficial perineal fascia, or the first fascial layer, a continuation of the obturator fascia previously described. All three of these layers of fascia have the same anterior attachment—the rami of the os pubis and ischium. Between the first layer, or the superficial perineal fascia, and the second layer, or the superficial layer of the deep perineal fascia, are situated three pairs of muscles—

the erector clitoridis, the sphincter vaginae, and the superficial transverse perinaei. The second layer, or superficial layer of the deep perineal fascia, passes backward to the posterior border of the transversus perinaei. It joins the superficial perineal fascia and the third layer, or the deep layer, of the deep perineal fascia. Between the two layers of the deep perineal fascia there is one pair of muscles—the constrictor urethrae, or the deep transversus perinaei. Beneath this muscle is the deep layer of the deep perineal fascia, which passes backward from its anterior attachment and joins the two other layers to form the transverse perineal septum, from which it is continued on the under surface of the levator ani, as the ischio-rectal, or anal, fascia previously mentioned. The union of these three layers of fascia forms the transverse perineal septum, which is further strengthened by a transverse fibrous band passing transversely across the pelvis from a point just anterior to the tuberosities of the ischii.

The perineal body is the mass of tissue between the anterior rectal and the posterior vaginal wall. Its center corresponds to the middle of the transverse perineal septum, about one-half inch anterior to the anus. This point marks the convergence of the three layers of perineal fascia, the external and internal sphincters ani, the levator ani, the transver-

sus perinaei, and the sphincter vaginae muscles. This body forms a fixed and most important point of support for the pelvic floor and serves to maintain the rectum and vagina in their relative positions.

The perineal region receives its nerve supply from the anterior divisions of the fourth and fifth sacral nerves, the coccygeal nerve, and the pudic nerve, which receives its fibers from the second, third, and fourth sacral, and, according to some authorities, from the first and fifth sacral also. The integument is also supplied by branches from the small sciatic.

The uterus is a flattened, pear-shaped organ, containing a small cavity, which opens below into the vagina and above, at each angle, into the Fallopian tube of the corresponding side. It is divided into a fundus, a body, and the cervix. The fundus is that portion above the opening of the Fallopian tubes. The cervix is the lower portion of the organ that projects into the vagina. It comprises nearly half the total length of the uterus and has a fusiform cavity, which opens into the vagina through a transversely oval orifice, called the "external os" or the "os uteri." Above, the cavity of the cervix is constricted as it opens into the cavity of the body, the constriction forming the internal os. The body of the uterus is that part of the organ between the fundus and the cervix.

The walls of the uterus are composed of three layers. The external, or serous, layer is formed of peritoneum. The middle, or muscular, layer forms by far the greater part of the uterus, and is itself formed by three irregular layers of involuntary muscular tissue, which are held together by a small amount of connective tissue. The inner of these layers has a general longitudinal arrangement, the middle layer is circularly disposed, while the outer layer is arranged both circularly and longitudinally.

The internal and lining layer of the uterus is of mucous membrane, and is called the "endometrium." This is composed of a single layer of columnar, ciliated epithelial cells, which are placed directly upon the muscular layer, the endometrium being peculiar in that it has no submucous connective tissue layer. In this mucous membrane there are a large number of tubular glands dipping down into the muscular layer. These are the uterine glands, and are lined with epithelium similar to, and continuous with, that on the surface. Besides these, there are in the cervix mucous glands, whose orifices may become obstructed, forming small cysts, which are visible to the naked eye—the ovules of Naboth. In the body of the uterus the mucous membrane is smooth, but in the cervix there are small ridges of mucous membrane radiating obliquely from an anterior and posterior longitudinal ridge.

These are called the "arbor vitae." The mucous membrane of the lower part of the cervix is covered with stratified pavement epithelium continuous with that of the vagina. The most marked peculiarity of the uterine mucosa is that it is exfoliated with each menstrual period.

The physician who has not by experience learned to recognize the normal size, position, and mobility of the uterus cannot hope to obtain success in practice.

Size.—The virgin uterus is a little less than three inches long, between one and one-half and two inches wide, and about one inch thick. After childbirth it remains somewhat larger than before, and after the menopause it again shrinks. When palpated through the vagina and abdominal walls, the organ seems larger than the dimensions given, owing to the thickness of the tissues through which it is felt.

Position.—The fundus of the uterus rises to, or slightly above, the brim of the pelvis; is directed forward and slightly upward; is approximately in the median line; and rests forward upon the bladder. The long axis of the body of the uterus is nearly horizontal in the erect position and forms a slight angle with the axis of the cervical canal. The cervix is normally found in the middle of a line connecting the ischial spines and points backward and slightly downward.

Mobility.—The uterus is an extremely movable organ, and is often found in positions which, if persistent, would be pathological; in fact, it may be said that fixation of the uterus in any position is abnormal. It descends and rises with each respiratory act, and is moved forward or backward by distention of the rectum or bladder. Its mobility is such that in a normal condition it may be pressed against the lateral walls of the pelvis with very little or no pain or discomfort.

Ligaments.—The uterus is supplied with eight ligaments, which contribute to its support and the maintenance of its position. These are two vesico-uterine ligaments in front, two sacro-uterine ligaments behind, and one broad and one round ligament on each side.

The vesico-uterine ligaments are formed of two folds of peritoneum that are reflected over the pelvic connective tissue lying between the bladder and the uterus. They are placed one on either side of the median line, and are attached to the uterus at the level of the internal os.

The sacro-uterine ligaments are composed of unstriped muscular fibers continuous with those of the uterus, with fibrous and loose connective tissue, all of which is covered by peritoneum. They are attached to the anterior surface of the second and third bones of the sacrum, from which they run

downward and forward to the uterus, one on either side, and are attached at the level of the internal os. These ligaments, with the anterior vaginal wall, are said to form an elastic beam, upon which the uterus is suspended. In their normal condition these ligaments prevent the uterus from being dragged beyond the vaginal entrance.

The broad ligaments are composed of loose connective tissue, unstriped muscular fibers, blood vessels, lymphatics, and nerves, covering which is peritoneum. The muscular fibers are a continuation of the outer layer of the uterine muscle, and form a flat layer of fibers between the uterus, ovaries, and tubes. A band of these fibers follows the ovarian artery to the vertebral column. The broad ligaments are attached by their inner margins to the sides of the uterus and, at their outer margins, to the sides of the pelvic walls, following a line beginning midway between the ilio-pectineal eminence and the sacro-iliac articulations, and running downward and backward to the level of the spine of the ischium, between the great sacro-sciatic notch and the obturator foramen. These ligaments, to a small degree, limit the lateral motion of the uterus; and if the sacro-iliac ligaments have for any reason lost their tone, they assist in the support of the uterus.

The round ligaments arise from the superior angles of the uterus, and, passing forward, upward,

and outward between the layers of the broad ligament, in front of and below the Fallopian tube, enter the internal abdominal ring, pass along the inguinal canal, and are lost in the labia majora. They are from four to five inches long, and consist of involuntary muscle fibers from the uterus. These ligaments are supplied by the genital branch of the genito-crural nerve, and are capable of electric stimulation. They are pierced through their center by a branch from the deep epigastric artery. The contraction of both ligaments tends to tilt the uterus forward; and in coughing, lifting, straining, etc., their simultaneous contraction prevents retroversion.

The ovaries are the organs contributing the ovum, the female element of reproduction. They are two flattened, elongated, oval-shaped bodies, measuring about one and one-half inches long, three-quarters of an inch wide, and about one-third of an inch thick. They are placed with their long axis almost vertical, their lower extremities being attached to the uterus by the ovarian ligament, while their upper extremities are attached to the fimbriated extremity of the Fallopian tube. By their anterior margins they are attached to the broad ligaments. The ovaries lie in a depression in the posterior layer of the broad ligaments, are slightly to the side and in front of the rectum, and are surrounded by the

small intestines. The peritoneum covering them loses its usual characteristics and becomes a layer of epithelioid cells. The position of the ovary varies according to the position of the uterus; but in all positions the Fallopian tube forms a loop around it, the inner half of the tube ascending obliquely over it, the outer half, with the dilated extremity, descending and bulging out behind it, from which the fimbriae pass to grasp it. In structure the ovary consists of a stroma of fibrous connective tissue, involuntary muscle fibers, and blood vessels, inclosed in which are a large number of Graaffian follicles in all stages of development. The outer layer, in which the connective tissue is more compact, is called the "cortical layer," and the outer and most compact layer of this is called the "tunica albuginea." Inside the cortical layer is found the medullary layer, in which the connective tissue is much less compact and the blood vessels more abundant.

The Fallopian tubes are for the conduction of the ovum to the uterus. They are from three to five inches long. They begin at the superior angles of the uterus, pass out between the layers of the broad ligaments in a tortuous manner, and by their outer extremity embrace the ovary. The tubes have a very small canal for their inner half, which opens into the uterus through the ostium internum. Throughout their outer half their lumen is dilated,

and they terminate in their outer end in a number of fringelike processes, the fimbriated extremity, that partially surround the ovary. The tubes have a serous, muscular, and mucous coat, continuous with the similar layers of the uterus. The mucous lining is thrown into a number of longitudinal reduplications, and is covered with columnar ciliated epithelium.

The vagina is a musculo-membranous canal leading from the vulva to the uterus. Its anterior wall is about two and one-half inches long, and the posterior wall is one inch longer. The walls are in contact, a transverse section showing the canal to have the general shape of the letter H. The axis of the vagina corresponds in a general way to that of the rectum and the urethra, presenting a slight S curve. It is situated between the urethra in front and the rectum behind. Its mucous membrane is covered with stratified squamous epithelium.

THE VULVA.

The vulva comprises those generative organs which lie without the pelvis, and are sometimes called the "external generative organs." They are the mons Veneris, the labia majora, the labia minora, the clitoris, and the hymen.

The mons Veneris is the prominence situated upon the symphysis pubis, and is composed of adipose tissue covered with integument, upon which abun-

dant coarse hairs develop after puberty. The growth of hair is limited by a straight or slightly curved line, and does not extend upward along the course of the linea alba as in the male. The mons Veneris is the only portion of the female genitals visible when the woman stands erect.

The labia majora are placed one on either side, and are the analogues of the scrotum in the male. They are continuous with the mons Veneris above and extend nearly to the anus below, where they become continuous by a thin fold of tissue called the "posterior commissure" or "fourchette." The labia majora have external and internal cutaneous surfaces, the external surfaces being covered with hair, the internal surfaces of the two labia being in contact, but having a cleft between them called the "rima pudendi." Between the surfaces of the labia are found adipose tissue, blood vessels, and nerves. In the lower third are found the vulvo-vaginal, or Bartholin's, glands. As the round ligament passes through the inguinal canal, it carries with it a prolongation of peritoneum, the canal of Nuck, which usually closes, but may remain open and become the seat of a labial hydrocele.

The labia minora are two cutaneous folds richly supplied with sebaceous glands. They begin anteriorly at the clitoris, one beginning above and forming its prepuce, the other beginning below and form-

ing the frenulum. They pass backward and become continuous with the labia majora about their middle. They are placed between the deeper portions of the labia majora. The labia minora are sometimes greatly hypertrophied.

The clitoris is the analogue of the penis in the male, and, like it, has two corpora cavernosa, a glans, two crura, a prepuce, and a frenulum, but no corpus spongiosum or urethral canal. It is the seat of sexual pleasure, and is richly supplied by the dorsal nerve of the clitoris, a branch from the pudic, and with sympathetic fibers.

The hymen is a thin fold of mucous membrane placed at the vulvo-vaginal junction. It partially closes the vagina, but has an opening in it that varies very much in shape in different individuals. The hymen is usually torn with the first intercourse, and is almost destroyed by childbirth, only three or four small prominences being left, which are called "carunculae myrtiformes."

The triangular space between the orifice of the vagina below, the clitoris above, and the labia majora to either side, and into which the orifice of the urethra opens, is called the "**vestibule.**" The bulbs of the vestibule are two plexuses of veins—one on either side of the vestibule and the vaginal orifice, just within the vaginal entrance and covered by mucous membrane. Anteriorly they are connected,

and posteriorly they extend almost to the posterior commissure.

The fossa navicularis is a space formed by separating the labia majora, and lies between the vaginal orifice in front, the fourchette behind, and the labia majora laterally.

NERVE SUPPLY.

The pelvic organs receive their nerve supply from the ovarian and hypogastric plexuses and from the second, third, and fourth sacral nerves.

The ovarian plexus originates from the renal plexus, which receives fibers from the smallest splanchnic, sometimes also the small splanchnic, and the first lumbar ganglion. It also receives a branch from the aortic plexus, and, continuing along the course of the ovarian artery, is distributed to the ovary and furnishes some filaments to the uterus.

The hypogastric plexus is placed between the two common iliac arteries in front of the body of the last lumbar vertebra and the promontory of the sacrum. It is devoid of ganglia, and is formed by the continuation downward of the aortic plexus and filaments from the lumbar ganglia. It furnishes a branch to the posterior portion of the fundus of the uterus, one to the Fallopian tubes; and then, dividing into two parts, it descends by the sides of the rectum; and, joining with filaments from the upper one

or two sacral ganglia, it forms the inferior hypogastric plexus. Some of the branches of the inferior hypogastric plexus go to the viscera direct; while others, with the third and fourth, and usually the second, sacral nerves, go to form the cervico-uterine ganglion, or the "pelvic brain," as denominated by Byron Robinson. This is a mass of gray matter situated on either side of the junction of the cervix and uterus, and through it the sacral spinal nerves are chiefly distributed to the pelvic viscera. This ganglion supplies the uterus and bladder particularly, but also branches to the ovaries, tubes, vagina, and rectum.

According to Riggs, the hypogastric plexus furnishes vaso-constrictor fibers to the pelvic viscera from the aortic plexus and from the lumbar ganglia vascero-inhibitory fibers to the uterus. Through it pass sensory impulses from the viscera, those from the uterus being through the lower dorsal and the upper lumbar nerves, especially the second and third.

The sacral nerves supply motor and sensory nerves to the bladder and motor and vaso-dilator nerves to the vagina. They also supply sensory nerves to the os uteri and constrictor fibers to the neck of the uterus, which latter Byron Robinson believes are to prevent the dilatation of the cervix and to act as a guard against uterine rhythm during pregnancy.

The connection of these sympathetic nerves with the spinal nerves and the osteopathic centers for the pelvic viscera are as follows:

Uterus.—Sensory second and third lumbar; in contraction, tenth, eleventh, and twelfth dorsal and first lumbar; os, second, third, and fourth sacral, possibly the first also, and rarely the fifth lumbar.

Vaso-motor first to fifth lumbar, the second lumbar being given as the center for blood supply.

Ovaries.—The center for these organs may be broadly stated to be from the ninth to the twelfth dorsal. Quain states that the sensory fibers pass through the tenth dorsal; McConnell gives between the tenth and eleventh dorsal as center for the blood supply; and Riggs gives the eleventh and twelfth dorsal as center for the ovaries. The ovarian nerves form connections with the uterine nerves, and can be affected through the lumbar region, which is the general vaso-motor center for the internal generative organs.

Vagina.—Motor and vaso-dilator; second, third, and fourth sacral.

Fallopian Tubes.—Sensory, eleventh and twelfth dorsal, and first lumbar. These fibers pass through the hypogastric plexus.

It must be remembered that the hypogastric plexus is amenable to direct treatment through the anterior abdominal wall, and that the cervico-

uterine ganglion may be reached per vaginam at the cervico-uterine junction.

The vulva receives its nerve supply from branches of the pudic and small sciatic nerves, which are made up of filaments from the first to the fourth sacral nerve.

CHAPTER II.

Examination.

The examination of a patient, besides being oral and physical, as understood by the medical profession, is also peculiarly osteopathic.

The oral examination, or anamnesis, is first in order, and consists of a number of inquiries pertaining to the patient's past and present state, as well as to conditions which may have had an influence in causing any abnormality.

Present Symptoms.—Naturally the first question is to ascertain from what symptoms the patient is now suffering. Pain, if present, is usually the most important symptom in the estimation of the patient; and it frequently enables the physician to locate the trouble, though it by no means follows that the disease is located where the pain is felt. In diseases of the cervix the pain is usually felt over the sacrum, while pain due to diseases of the fundus of the uterus is reflected to the umbilical region. Headache,

particularly the form in which the pain is felt in the top of the head, is often due to uterine trouble, as are also pains in the back, down the thighs, and in the knees, in which cases the pain is reflected through the sacral and lumbar nerves. A sense of weight and fullness in the abdomen, the so-called "bearing-down pains," is associated with pelvic congestion, and frequently with contraction of inflamed pelvic connective tissue. The time of occurrence—whether before, during, or after the period—gives some indication as to the location and cause of the trouble. Pain of ovarian origin precedes the flow for some days; that due to a diseased endometrium continues throughout the period; while that felt just before the flow and relieved by it is usually due to a flexion. The pain may be regular or intermittent, or may be aggravated by certain conditions, as standing or walking.

Duration of Illness.—This will determine whether or not the disease is acute or chronic and aids in making a prognosis.

Age.—This is of especial importance in patients near the age of puberty or near the menopause or in those in whom cancer is suspected. Under other conditions the age may be approximated by the patient's appearance.

Social Condition.—Whether or not the patient is or has been married or is single has a bearing in a

great many cases. Many conditions found after marriage are rare before that time.

Number of Births or Miscarriages.—The incidents and accidents of childbirth or miscarriage account for a great many conditions. Lacerations of the cervix and perineum are almost invariably due to these causes; and many cases of endometritis, menorrhagia, or metrorrhagia can also be traced to them. In cases of repeated miscarriages syphilis may be suspected. The severity of the labors, whether instrumental or not, and the date of the last, if the trouble began after childbirth or miscarriage, should be ascertained. If the patient is sterile, it may be due to some diseased process.

Menstrual Habit.—The frequency, regularity, amount, duration, and attendant pain of menstruation must be known. It must be borne in mind that what is customary for one individual is no rule for another. Departures from the patient's normal habit, the nature of the change, and its time of occurrence are of importance.

Previous Health.—The past general health, and especially that of the pelvic organs, must be inquired into. Palpitation or breathlessness may indicate anaemia. A neurasthenic condition shows irritation to the general nervous system, probably arising from the generative organs.

Previous Treatment.—Operations account for many

conditions of the perineum, vagina, cervix, uterus, and ovaries. This is also true of other forms of treatment, as pessaries, caustics, etc.

Discharge.—The character of the discharge, if present, will frequently afford some knowledge of the location and kind of trouble. (See "Leucorrhoea.") Normally the vaginal secretion is not sufficient to attract attention. It may be thin and whitish in color; but when abundant, it may be thicker and even creamy in consistence. The cervical discharge is viscid, clear, and resembles the white of an egg. A muco-purulent discharge usually indicates gonorrhoeal infection or chronic endometritis. Watery discharge may come from congestion of the pelvic organs, or possibly cancer, in which case it will have an offensive odor and contain more or less blood. Fetid discharges are also caused by ulceration, sloughing, retained products of conception, etc. Bloody discharges may also be caused by endometritis, fibro-myomata, polypi, lacerations, and disease of the cervix.

Family History.—Deaths of near relatives from tuberculosis or cancer or severe neurotic troubles may bring light to bear upon the case.

The patient should now prepare as for an ordinary osteopathic treatment by removing the corset and dress skirt and putting on a treatment robe or wrapper. The **osteopathic examination** is now to be

made. For this it is best to have the patient lying on her side on the treatment table. The physician stands in front, and by reaching over the patient the vertebrae can be readily felt and all irregularities and tender points found. No part of the spine should be neglected in this examination, but particular attention should be given to that part from the middle dorsal region down to the coccyx, the lower ribs, and to the relations of the pelvic bones to each other and to the spine.

Muscular contractures will frequently be found in the lower dorsal and lumbar region; and while they affect the sympathetic life to a great degree in these situations, such lesions are of even greater etiological importance when found over the sacrum, as they often are. This is due to the intimate connection between the second, third, and fourth sacral nerves and the pelvic organs. In some cases contractures will be found to be the chief or only lesions. Muscular contracture are often secondary to disease of the pelvic organs.

In the dorsal region the condition of the ninth to the twelfth vertebra is to be carefully noticed, as it is here that lesions affecting the ovaries are often found. Lesions above the ninth dorsal may also cause pelvic troubles.

Any single one of the lumbar vertebrae may be displaced, or there may be a gradual curve affecting

the whole region. A posterior curve is most often found. The fifth lumbar should be very carefully examined owing to its intimate relation to the hypogastric plexus, which is situated on its anterior surface, and its location at one of the natural "breaks," or weak places, in the spine. One of the most troublesome displacements of this vertebra, both as to diagnosis and treatment, is an anterior condition. Either thin abdominal walls or unusually prominent nates may simulate an anterior condition and deceive the examiner. Tenderness at the sacro-vertebral articulation and the relative position of the fifth lumbar to the fourth and to the sacrum will prevent a mistake.

Another lesion that is sometimes found in the lumbar region is rotary in character, one of the vertebrae simply rotating around the tip of its spinous process. The spinous process remains in its position relative to the ones above and below it, but the transverse process on one side of the vertebra is lateral and at the same time posterior, the one on the opposite side of the bone being anterior and slightly toward the median line. The posterior transverse process is very tender, and the muscles on that side particularly are contracted.

Lesions of the lower ribs probably cause trouble by impingement upon the nerves leaving the contiguous intervertebral spaces. Dr. Still suggests

that they may cause contraction of the diaphragm, and in this way constrict the ascending cava.

Some of the most important lesions, as well as those that will most severely test the diagnostic ability of the physician, are those affecting the bones of the pelvis. These lesions may involve the pelvis as a whole or any of its component bones.

The pelvis may be tilted, the crest of the ilium of one side being up, while that of the opposite side is down; or it may be slipped forward or backward in its relation to the spinal column; or it may be rotated laterally, the anterior superior spine of one side being too far forward, while the one on the opposite side is too far backward; or it may be tipped forward or backward, in which case both the posterior superior spinous processes recede anteriorly or are too prominent posteriorly.

The innominate bones may be displaced downward and either forward or backward, the latter most often, or upward and either forward or backward, the former most often. Dislocations with a downward tendency are more frequently seen than those upward.

In examining for these lesions, some system should be followed. The one recommended is to begin with the patient on her side facing the physician, and then, by reaching over, spinal and rib lesions can be detected, as well as tenderness over

the lumbo-sacral and sacro-iliac joints and contractures and tenderness over the sacrum. Next, have the patient turn upon her face, and, with the back bare or a very light garment on, the spine and pelvic articulations can be further examined. Carefully examine the spine by palpation and inspection for any abnormality. Notice whether or not the posterior superior spines are upon the same level in regard to the perpendicular of the body, also whether or not one or both are too prominent posteriorly or too far forward. The deviations to be expected at this point are upward and downward and combinations of these, as upward and forward or downward and backward, etc. If both are too far forward, the pelvis is tipped forward; if both are too far backward, the pelvis is tipped backward. If only one is too far forward, the innominate bone of that side is displaced forward and will be found to be either upward or downward also. If one is too prominent posteriorly, the opposite condition obtains. If one is too high and the waist is shorter on that side, while the other is low, the pelvis is tilted laterally. Tenderness at the sacro-iliac articulation, the crest of the ilium, and at the pubic symphysis is said to be pathognomonic of subluxation of the innominate.

The patient is now put upon her back, and after carefully relaxing all the thigh muscles by flexion,

extension, and outward and inward circumduction, the length of the limbs is carefully compared. In doing this, be sure that the patient is lying straight, and that a line passing through the anterior superior spinous processes is at right angles to the median line of the body. If an innominate be either up or down with any of the modifications of these subluxations, it will show in either a shortened or a lengthened limb.

Examine the symphysis pubis for irregularities. A depression, if found, of the upper border of one pubic body will indicate the side upon which the innominate is anterior. Notice the anterior superior spinous processes and the symphysis pubis and see if they lie on the same plane.

The diagnosis may now be verified by having the patient sit upon the side of the table and by making the examination in this position.

Compensatory curves of the spine should also be looked for, as they occur as a result of inequalities in the length of the limbs.

PHYSICAL EXAMINATION.

If the case demands it, the physical examination may now be given. No further preparation on the part of the patient is required, unless it be necessary to inspect the abdomen, when the clothing will have to be opened down the front. For this examination

two positions are almost exclusively used—the dorsal and Sim's, or the left lateral. In the dorsal position the patient lies upon her back, with the knees drawn up and separated; in Sim's position the patient lies upon her left side, with her left arm behind her, and at the same time turned so far forward that the left cheek lies upon a pillow and the chest touches the table. The right buttock is turned somewhat forward, and is nearer the head than the left. The knees are drawn up, the right knee above the left and somewhat in front of it. This position possesses the advantage of being specially adapted to the use of Sim's speculum, in some cases enabling the examiner to reach higher in the pelvis, and is well suited for rectal examinations and treatment.

For examining the abdomen the dorsal position is used. The methods employed are inspection, palpation, percussion, auscultation, and occasionally mensuration.

Inspection reveals whether or not the abdomen is enlarged, and frequently gives information as to the cause of the enlargement. The enlargement due to a tumor or pregnancy is more localized and accentuated than that caused by the accumulation of fat, or fluid in the peritoneal cavity, or gas within the intestines. It will disclose any discoloration, or linea albicantes, the evidences of previous or present abdominal distention, or other abnormality of the surface.

Palpation first determines the muscular or tissue resistance, any localized tenderness, particularly over the region of the ovaries, appendix, or hypogastrium, or the enlargement of any organ or other abnormal growth. If a growth of any kind is detected, its attachment, consistence, size, and degree of motion should be ascertained.

Percussion affords information as to the nature of a tumor, whether containing gas or whether it is fluid or solid, and also as to its size and distribution. If it contains gas, a tympanitic sound is produced on percussion; if it is solid or contains fluid, the sound is dull or flat. The area of tympany or dullness should be carefully noted; and if each changes with a change in the patient's position, the dull area gravitating to the most dependent part, the tympany remaining above, the condition is one with a free fluid in the peritoneal cavity, or ascites.

Auscultation will determine the existence of pregnancy after the fifth month, if the fetal heart beat can be heard. The blowing sound, or uterine souffle, caused by the rush of blood through the large vessels of a pregnant uterus or a uterine tumor can sometimes be heard.

Mensuration is not often used for abdominal examination. It is sometimes useful to determine the rapidity of growth of a tumor, two measurements being taken at intervals and compared.

VAGINAL EXAMINATION.

There is a disposition upon the part of some to neglect the intra-vaginal examination, even saying: "Many cases of pelvic trouble can be cured without an examination." While this may be true, it is certainly a fact that any physician attempting to cure a pelvic disease without an examination and a correct diagnosis is working in a haphazard and unscientific manner. It is just as rational to attempt to cure a general disorder without an osteopathic examination and as great an injustice to the patient. It is only in some unmarried women that a vaginal examination must be dispensed with, and in these cases much can be learned concerning the condition by a rectal examination.

In this examination it is best to use the index and middle fingers of the hand most sensitive to touch. In the examination of virgins only the index finger can be used, but in all women who have borne children and in most married women two fingers can usually be used without great pain or difficulty. By the use of two fingers the pelvis can be explored nearly an inch higher, stronger and steadier pressure can be exerted, and the manipulation of the organs is much easier and more thorough.

The patient occupies the dorsal position. The physician stands by the side of the table, his hands hav-

ing been perfectly cleansed and the fingers anointed with vaseline (soap is easier to remove and does not stain the patient's clothing, but usually is too irritating); the unemployed fingers are folded into the palm of the hand; the hand beneath the clothing is passed underneath the patient's knee; the vaginal entrance is approached from the side, care being taken to keep the fingers well back toward the perineum.

The condition of the vaginal walls should be carefully noted; then the cervix must be located and examined. The cervix should be about the middle of a line connecting the ischial spines, and points backward and slightly downward. It will be recognized as a somewhat cylindrical protuberance into the upper portion of the vagina. It feels firm, somewhat hard, and has a slight depression, the external os, in the center of its end. If a laceration has occurred, the external os will not feel oval or round; but the tears radiating from it can be felt, and it will seem two-lipped, three-lipped, etc., according to the number of tears. The condition of the cervix and the external os should be carefully ascertained. The position and direction of the cervix is of some aid in diagnosing displacements of the uterus, but a diagnosis should never be made by the position of the cervix alone; the body of the uterus should also be located. Usually if the cervix is anterior to its

normal position and points downward, there is either prolapse or retroversion. If posterior, it has been drawn backward by contracting bands of inflamed pelvic connective tissue, and anteflexion is probably produced.

The cervix should next be tested for mobility. With a finger on either side—or one finger, if only one can be used—it should be pressed toward the lateral walls of the pelvis and toward the sacrum. If there are any pelvic connective tissue adhesions, they will restrict the motion toward the side opposite the one on which they are placed; and if they are of recent formation, stretching them will cause pain. If pain is caused on the side toward which the cervix is forced, it is caused by pressure upon an inflamed ovary or Fallopian tube.

The examination of the remaining contents of the pelvis is now to be undertaken. This is accomplished by the *bimanual method.* The external hand, which has been resting lightly upon some part of the patient's body, is now put upon the abdomen, with, at most, only a thin garment between it and the skin. The fingers are slightly curved, and a gentle vibratory pressure is made in the direction of the pelvic axis to one side of the median line (about the outer edge of the rectus abdominis); and at the same time the fingers of the intra-vaginal hand feel upward to one side of the cervix until the

fingers of the two hands are brought into apposition, the abdominal wall alone intervening. Having approximated the fingers in this manner and ascertained the thickness of the abdominal wall, the next step is to place the intra-vaginal fingers behind the cervix; and by moving the external hand and tissues with it toward the median line, without relaxing the pressure, the uterus is brought between the fingers. Its size, tenderness, freedom from growths; its consistence; its position and degree of rigidity at the cervico-uterine junction, are all carefully noted.

If the intra-vaginal fingers are now placed in front of the cervix and the uterus grasped between the fingers of the two hands, the anterior surface of its body can be examined. If by the first method of examination the cervix was found to be fixed or its mobility limited, the cause should now be learned. If due to an adhesive band, as is usually the case, the band can be examined by pressing the cervix to one side so as to make the band tense, while with the other finger its size, firmness, and thickness are judged.

The ovaries are best palpated by beginning at the angle of the uterus, with the fingers of both hands approximated, and examining laterally and posteriorly. It requires considerable practice to locate and examine the normal ovary. When enlarged from

any cause, they are more easily found. When located, their mobility and tenderness should be tested.

The Fallopian tubes, in their normal condition, offer still more difficulties for examination. They are best examined by beginning at the uterine angles and palpating outward and backward, as in locating an ovary. When filled with fluid or otherwise enlarged, they may be recognized by their tortuous course.

CHAPTER III.

Intra-vaginal or Local Treatments.

The local treatments are of the greatest power for good in the relief of pelvic diseases; and their technic, frequency, and contraindications require discrimination and judgment.

TECHNIC.

These treatments are usually given in the dorsal position, frequently in the left lateral, and occasionally in the knee-chest position. The fingers to be used in the vagina must be rendered aseptic by the use of soap and water, and then anointed with some unctuous and sterile material, as carbolized or plain vaseline. In ordinary treatments the index finger or index and middle fingers of the right hand are used in the vagina; and with the patient in the dorsal position, the physician facing her head, with these fingers the right side of the pelvis can be more thoroughly treated. Treatment of the left side of the pelvis will often be facilitated

by standing on the patient's left, facing her head, and using the fingers of the left hand.

Counter pressure from above, when necessary, is made by the fingers of the hand not employed in the vagina.

No routine treatment can be prescribed, each case requiring treatment to meet its individual conditions. As a rule, there are one or both of two indications—to relieve congestion and to correct displacement.

Bearing in mind the course of the blood vessels between the layers of the broad ligaments, the first of these indications is met by getting the tissues of the broad ligaments between the fingers of the intra-vaginal and external hands and by making gentle motions outward and upward, at the same time allowing the broad ligaments to slip between the fingers. Another method, easier of application, though not quite so effective, is to steady the uterus with the external hand and make the motions with the intra-vaginal fingers only.

These directions are applicable only to those cases in which the possibility of enlargement of the tubes is absolutely excluded. *Should there be a suspicion of a tubal enlargement, all manipulations must be made toward the uterus to prevent the escape of the tubal contents into the peritoneum.*

In the vagina the movements may be made from

the anterior column laterally toward either side.

Congestion is also relieved by moving the uterus in all directions—anteriorly, posteriorly, laterally, and upward. This mechanically forces the blood from the congested vessels, frees the circulation by removing tortuosities, and stimulates nutrition.

The methods of reducing displacements are described under the treatment of displacements.

In regard to the amount of force to be used in giving local treatment, it is just as easy to prescribe the amount of force for every case of inflammatory rheumatism. A safe rule is never to cause the patient too severe pain. The manipulations should be gentle, firm, and deliberate.

FREQUENCY.

The vagina is lined with squamous epithelium, and is adapted by nature to friction; while the pelvic organs possess great mobility, and are by nature designed to withstand more violence than any other of the internal organs. Treatment should, therefore, be repeated as soon as the effect of the previous treatment has subsided. This is not oftener than every other day, possibly only twice a week; while sometimes, though rarely, a week or ten days should elapse before another treatment can and should be given. Ordinarily cases do best if treated twice or three times per week.

CONTRAINDICATIONS.

Acute inflammation of any of the pelvic organs is a contraindication to local treatment, and especially if the inflammation be purulent. Acute vaginitis, endometritis, salpingitis, peritonitis, and cellulitis should not receive local treatment until several weeks have elapsed since the subsidence of the fever, and even then it exceptionally happens that the treatment is followed by a slight rise of fever, which must be allowed to subside before the treatment is repeated.

Menstruation is not a contraindication, but is an indication for great care and gentleness. Ordinarily local treatment is suspended during the periods, but in some cases of dysmenorrhoea and in stubborn cases of displacements caused by adhesions more can be accomplished at this time than at any other.

Chronic collections of pus, as before stated, are an indication for all manipulations to be made toward the uterus.

CHAPTER IV.

Menstruation.

Menstruation is the periodical, physiological phenomena occurring during the reproductive years of a woman's life. Its most evident manifestation is the discharge through the external generative organs of a muco-sanguineous fluid. Associated with this there is a degeneration and exfoliation of the mucous membrane of the uterus and probably of the uterine extremities of the Fallopian tubes, congestion of the tubes and ovaries, a condition of general lessened vascular tension, a decrease in the elimination of urea, a slight decline in temperature, and an unstable condition of the general nervous system. All of these conditions go to prove that the system is affected throughout.

The first menstrual period should occur at the age of puberty, and marks the development of the function of reproduction, although conception can take place before the first menstruation. The first period should occur between the ages of thirteen and seventeen years in warm climates, and is somewhat later in cold regions. Occasionally it occurs in in-

fancy, or it may be delayed beyond the time of physical maturity. Menstruation normally ceases at the climacteric, or the menopause, between the forty-fourth and the fiftieth years. The cessation of menstruation between puberty and the menopause, except during pregnancy and lactation, is abnormal.

Normally, the menstrual periods should occur regularly every twenty-seven or twenty-eight days. There are many exceptions to this rule, in which the interval is habitually a few days longer or shorter. The amount of fluid passed is estimated to be from four to five ounces, by far the greater amount being blood. The average duration is from four to five days. Individuals differ very much in the length of the intermenstrual period, the duration of menstruation, and the amount and character of the discharge, each individual having her own habit of menstruation, which will be followed by her in a normal condition.

The source of the blood is from the body of the uterus and the uterine extremity of the Fallopian tube. Preceding the discharge of blood there is a thickening of the mucous membrane, due to cell proliferation and to congestion of its veins and capillaries. This is followed by cell and plasma infiltration beneath the epithelium, which becomes loosened, undergoes degeneration, and, with the blood which oozes from the ruptured capillaries, consti-

tutes the greater part of the menstrual discharge. It is generally believed that only the superficial layers of the mucous membrane are thrown off, these being re-formed during the intermenstrual period.

Initiating the period there is a discharge, brownish or reddish in color, consisting chiefly of vaginal mucus, with a small amount of blood. Following this there is a discharge of almost pure arterial blood, mixed with vaginal mucus, which prevents its coagulation, and with epithelial cells, leucocytes, and débris from the uterus. Toward the end of the flow the discharge gradually loses its color, diminishes, and finally ceases.

In many cases the inception of menstruation is irregular. There may be a muco-serous discharge preceding the regular menstrual discharge for a month or more, or, following the first menstruation, one or several periods may elapse before its reappearance. This condition is not necessarily pathological, but a lapse of several periods should demand a careful examination as to its cause.

In those cases in which menstruation is normal it is rarely the case that the period is passed without more or less discomfort, if not some actual suffering. It is usually accompanied by a feeling of malaise, heaviness in the pelvis, headache, digestive disturbances, congestion of the tonsils or throat, tenderness of the breasts, rings about the eyes, pig-

mentation of the skin, a peculiar odor to the breath. mental depression, or a generally nervous condition.

THE MENOPAUSE.

The menopause—the climacteric, or the change of life—is the physiological cessation of the menses, which marks the end of a woman's fruitfulness. It begins from the forty-fifth to the fiftieth years and lasts from one year to five years, but, as a rule, is completed in two or three years. In rare instances the menopause has occurred before the thirtieth year, and menstruation has continued into the sixth, seventh, and even the eighth, decades of life. It occurs late in those in whom menstruation began early.

This condition is the reverse of puberty, being the death of a function which has continued on an average for thirty-four or thirty-five years; and while it is physiological, it is accompanied by organic changes, and is particularly liable to derangement. Its disturbances are less severe when it comes on gradually.

Pathology.—All of the generative organs undergo atrophy. Fat disappears from the vulva, and it becomes flat and wrinkled. The uterus becomes smaller, firmer; its mucous membrane is thinned, and is often the seat of a catarrhal inflammation. The ovaries atrophy, are shriveled and hard, and

may almost disappear or be converted into fibrous tissue. Similar changes occur in the tubes. The breasts become flat and shrunken, though sometimes fat is deposited in them and they enlarge.

The cervical and hypogastric plexuses are also involved in this atrophic change, and to their connections with the abdominal brain and its branches and with the cerebro-spinal nerves are due the numerous visceral and mental reflexes that form so distressing a feature of the menopause.

It will be remembered that these changes occur often in uteri in which previous disease has left organic changes or in those which are the seat of active disease.

Symptoms.—These are legion, though, fortunately, all that are enumerated do not occur in every case. The first indication of the menopause is derangement of the normal menstrual habit. An abrupt cessation of the menses is very uncommon. The interval between the periods may be prolonged by a few days, a week or more, or one or two periods may be skipped, to be followed by a very profuse flow at the next period. The flow in other instances may continue longer, or sometimes the periods occur more frequently. The amount of the flow is usually decreased, but the reverse is sometimes true. The irregularity increases, the amount of the flow becoming less or the intervals longer, until menstrua-

tion at last ceases permanently. The more gradually the flow ceases, the less will be the general disturbance.

During this time numerous other symptoms manifest themselves. Vaso-motor reflexes will be evidenced by hot flashes or burning sensations, alternate paleness and redness of the face or other skin surfaces. This is often followed by abundant, and sometimes fetid, perspiration. The hands and feet are continually cold.

Vertigo, noises in the ears, defective sight, headache, backache, and neuralgic pains are common. The patient is nervous, restless, and irritable; her memory is poor; she is apprehensive, depressed, hysterical; and if she has tendencies toward insanity, it may develop at this time. Areas of hyperesthesia or anesthesia or subjective sensations of burning, smarting, or itching may be present.

Leucorrhoea occurs in nearly half the cases. Indigestion and gastric pain, functional disturbances of the liver, with jaundice and the appearance of hemorrhoids, are common.

Palpitation of the heart is often a very distressing symptom. With it may be faintness and dyspnoea, or a sense of fullness in the region of the heart.

The sexual appetite may be abnormally increased. A large number of women gain flesh during the menopause.

Treatment.—Many of these cases prove very troublesome, for the reason that the avenues of reflex disturbances are almost innumerable and on account of the restlessness and impatience of the patient. One class of symptoms are relieved, only to be followed by others equally distressing.

Patience, perseverance, and painstaking are the price of success, which at times seems marvelous.

All possible sources of additional irritation should be removed. Lesions—not only those affecting the pelvic organs, but those of distant organs—should be reduced.

Displacements of the uterus or of the ovaries should be corrected and all pelvic adhesions relaxed. Endometritis, which is frequently present, must be cured.

Constipation should be relieved at once by enemata and cured as soon as possible; the digestive organs should be stimulated and relieved of all burdens by a diet which is easily digestible, but nutritious; the emunctories should all be kept active.

All sources of mental disturbance should be removed and the patient allowed to be as free from care and anxiety as possible.

Gentle, relaxing, general treatment will relieve nervousness, insomnia, and assist assimilation. Tepid or warm general baths are also useful for this purpose.

Palpitation, gastric pains, or neuralgia receive the usual treatment for such conditions.

Psychic means are sometimes of aid in relieving the depression, melancholia, and hysterical tendencies.

CHAPTER V.

Disorders of Menstruation.

Precocious menstruation is the occurrence of the menstrual phenomena every four weeks in a child under the age of puberty. While this is a rare condition, it has been observed from birth, in the first year of life, and becomes more common in the succeeding years till puberty is reached. In such cases the breasts, sexual organs, and sexual appetite are usually correspondingly developed. In a number of cases menstruation will be found to have begun as early as the tenth or twelfth year, this being especially the case in warm climates. Such cases may be said to be premature rather than precocious.

The time of the beginning of menstruation is influenced greatly by environment, habit, and climate. It occurs earlier in those whose nervous equilibrium has been disturbed by either poor food, bad hygienic or moral surroundings, or from habits of ease and indolence or lives of luxury.

The treatment in these cases resolves itself into a search for the cause of the trouble, which is not often found. If found, it is, of course, removed. It is best not to attempt to arrest the hemorrhage, as this may lead to vicarious menstruation. Keep the patient quiet at the period, and give general osteopathic, dietetic, and hygienic treatment to preserve the strength of the patient, which suffers under the loss of blood. The best moral surroundings should be preserved.

Vicarious menstruation is the occurrence at the menstrual period of a flow of blood from some part of the body other than the uterus or an abnormal secretion accompanied by a diminution or a suppression of the regular flow.

This condition is also of infrequent occurrence, and is seen in debilitated, nervous, or hysterical women and in those having a defective innervation of the genital organs, causing a scanty menstrual discharge. The vicarious hemorrhage has occurred from almost all parts of the mucous and skin surfaces, usually from the nose, stomach, lungs, or breasts; it has also occurred from lesions on the surface, as ulcers or wounds. Of the abnormal secretions, diarrhoea, leucorrhoea, or a flow of milk has been observed.

The treatment in these cases is clearly indicated by the general condition of the patient and the spinal

or pelvic osteopathic lesions present. The patient's general health should be built up by appropriate general treatment, the lesions reduced, and the normal menstrual flow stimulated, as in amenorrhoea.

AMENORRHOEA.

Amenorrhoea is either the failure of the menses to appear in a woman who has passed the age of puberty or the cessation of the flow after it has once been established. In the latter case it is called "suppression of the menses."

Causes.—1. Defective innervation to the internal organs of generation from muscular or osseous malalignment. Before the age of puberty ample opportunity is afforded for the production of various lesions which may affect the internal generative organs. It is in such cases that the organs reach full growth, but their functions are dormant.

2. Absence or defective development of the uterus or ovaries. Such congenital defects are sometimes seen in women of otherwise perfect development, but are usually associated with faulty development of the pelvis or breasts.

3. Ovarian atrophy. This may result from some of the acute febrile diseases—as measles, scarlet fever, typhoid fever, etc.—mumps having an especial tendency to affect the ovaries by metastasis. Both ovaries would have to be destroyed in order to cause amenorrhoea.

4. Atresia of the uterus or vagina, or imperforate hymen.

5. Constitutional diseases acquired before the age of puberty, particularly tuberculosis or anaemia. In such cases the amenorrhoea is beneficial rather than harmful.

Suppression of the menses may be either temporary or permanent. The causes of both forms will be considered together.

1. Osteopathic lesions affecting the nerve or blood supply to the internal organs of generation.

2. Pregnancy and lactation. These are physiological causes of amenorrhoea, and in every case presenting itself for treatment the possibility of pregnancy should be eliminated.

3. Exposure to cold or wetting or chilling any part of the body, particularly the feet, during or preceding a menstrual period. The feet and pelvic organs have a very intimate connection through the lumbar and sacral nerves.

4. Obesity. Amenorrhoea and sterility are often associated with the rapid accumulation of fat in young women.

5. Systemic diseases; chronic diseases of the heart, kidneys, liver, pulmonary tuberculosis, anaemia, chlorosis, malaria, and insanity; acute diseases, as typhoid fever, pneumonia, etc. The persistent use of morphine may also be considered in

this connection. The impression prevails among the laity that the absence of menstruation is the cause of many of these chronic diseases. The opposite of this is really the case.

6. Overwork and insufficient food; also habits of ease, indolence, and luxury. A certain amount of exercise is as essential to proper menstrual function as overwork and poor food are detrimental to it.

7. Mental causes. These include a number of different conditions. Among them is shock, either of a joyous or grievous nature; severe and long-continued mental application; change of climate or surroundings; and fear of conception, either in the married or after illicit intercourse.

8. Removal or disease of both ovaries. In rare cases menstruation may continue for a variable length of time after the removal of the ovaries, and in other cases when their substance seems to be completely destroyed.

9. Removal, atrophy, or disease of the uterus. Atrophy of the uterus may follow an operation or constitutional or local disease; but most often it follows labor or miscarriage, when it is called "superinvolution."

10. Pelvic peritonitis. Adhesive bands may constrict the Fallopian tubes, or, by the effect of pressure direct or upon the blood supply, cause ovarian atrophy.

The gravity of a case of amenorrhoea depends upon its cause. In cases of faulty development it need excite no alarm, as the patient's health will probably not be at all affected by it. Again, in cases of severe constitutional diseases the disappearance of the menses is a conservative process of nature, and is for the patient's good rather than hurt; and the function will be reëstablished when the systemic trouble is relieved and the general health is sufficiently robust to spare the blood for the flow. In young girls a delay of one period or several periods at the beginning of menstruation is frequently seen, and no evil consequences follow.

Symptoms.—Suppression of menstruation, and sometimes amenorrhoea, is followed by certain symptoms which are most evident about the time of the expected flow. These are a sense of fullness in the head, rushes of blood to the head, vertigo, hot flashes over the body, often heaviness and weight in the pelvis, nervousness, hysteria, or hystero-epilepsy. Should any part of the genital tract be occluded, there will be added to these symptoms those of a rapidly-growing tumor, which increases in size periodically with the onset of these symptoms. This tumor is, of course, due to the accumulation of the menstrual flow.

Treatment.—Emphasis must be put upon the fact that amenorrhoea, like the other disorders of men-

struation, is not a disease *per se,* but is merely a symptom, the cause of which is to be found and removed. Judgment is to be used in every case to determine whether or not it is best to cause the re-establishment of the flow, as in some cases already mentioned it might prove harmful to the patient.

The first point to be decided is whether the case is one of amenorrhoea proper or suppression of the menses. If it be one of amenorrhoea, a thorough bimanual examination will determine whether it be due to absence or defective development of the pelvic organs or to occlusion of the genital tract or to an imperforate hymen. If the ovaries and uterus are absent or are in a very rudimentary condition, the treatment will be of no avail; if atresia, or imperforate hymen, is found, the treatment must be surgical; if a constitutional disease is the cause, the indications are to cure the systemic disorder. In some cases in which the organs are well formed, but are apparently dormant, good can be done by the treatment as given for suppression of the menses.

In menstrual suppression the treatment is also adapted to the cause. All osteopathic lesions that could directly or reflexly affect the pelvic organs should be reduced. In those cases due to cold contractures in the lumbar and sacral regions, and sometimes bony lesions, will be found. In obesity

the flesh should be reduced by treatment and diet, when the menses will in all probability return. Good food and rest are to be given to the hungry and tired, and exercise, regular habits, and plain, but nutritious, food to the indolent and those accustomed to luxurious habits. In every case attention should be given to the respiratory and circulatory systems, and their functions rendered perfect if possible.

Lastly come the cases in which it is necessary to reëstablish the flow. This result is accomplished by the removal of all lesions, a thorough relaxing and spreading of the lower dorsal and lumbar tissues. This can be done by straight extension of the spine, by "breaking up" the spine, and by the "figure of 8" movement. The lower limbs should be thoroughly, but gently, treated out. Circumduction of the foot by holding the ankle with one hand and with the other describing circles with the patient's toes, several times each way, is said to increase the amount of blood in the pelvis. This treatment should be continued regularly, and a few days before the expected flow the following treatment may be added to it (in some cases it will be necessary to give this treatment continuously with that described above): Lay one hand flat over the sacrum, the patient lying on the table on her face, and with the closed fist of the other hand strike it

sharply. A single treatment of this kind has been known to cause the appearance of the flow after it had been absent for several months. The effect is no doubt due to a stimulation of the sacral nerves, which tones up the pelvic tissues and organs. Inhibition over the lumbar region is also to be given. This is the vaso-motor center for the pelvic viscera, and its inhibition causes a dilatation of the arterioles and a more abundant and more vigorous supply of blood. As an adjunct to this, hot foot baths, hot Sitz baths, and hot applications over the epigastrium just preceding the expected flow will be of service. If the flow is not established the first month, remember that success is the reward of perseverance.

DYSMENORRHOEA.

Dysmenorrhoea is painful menstruation. As before mentioned, it is rare that menstruation is not accompanied by some discomfort, if not actual pain. Pain is relative, and depends largely upon the susceptibility of the individual, the amount of irritation which would cause pain in one person being scarcely noticed by another. So in dysmenorrhoea the patient's temperament or nervous susceptibility is to be considered. Owing to this difference of sensibility, pain is not always proportionate to the lesion causing it.

Causes.—1. Defective innervation and blood sup-

ply, due to muscular and osseous lesions to the lower dorsal and lumbar regions and in the pelvis.

2. Uterine displacements. Of these, anteversion is the most frequent cause, either when the angle produced causes an obstruction to the flow or when it interferes with uterine contraction. Extreme retroflexion may cause trouble in the same manner, and the remaining displacements by the congestion and inflammation which they induce.

3. Endometritis and pelvic inflammation. In endometritis the uterine mucosa is in an erethistic condition, and the congestion and contractions incident to menstruation cause pain. In pelvic inflammation congestion and adhesions are found. The congestion is increased at the period; and this, with the interference with uterine contractions, causes pain.

4. Prolapse of the ovaries and ovaritis. The natural monthly congestion increases the weight and size of a prolapsed ovary and excites any inflammation which may be present.

5. Exposure to cold and wet. This usually delays or stops menstruation; and when the period returns, it is accompanied by pain.

6. Narrowing of the cervical canal, either congenital or acquired. Acquired stenosis is caused by the formation of cicatricial tissue or by spasm of the cervix.

7. Polypi of the uterine body or cervix. These obstruct the passage of the flow and cause painful uterine contractions.

8. Clotting of discharge. When the flow is scant, it forms clots, the discharge of which causes pain.

9. Neurasthenia. Occasionally there is no cause apparent other than a hypersensitive condition of the uterine nerves, the menstrual congestion producing pain. In some such cases it is difficult to determine whether the nervous condition is the cause or the effect of the trouble.

10. Expulsion of the uterine mucosa entire. This is the so-called "membranous dysmenorrhoea," in which the mucosa is exfoliated entire, or nearly so. This expelled membrane must not be mistaken for the products of conception.

Symptoms.—The pain may vary from a slight discomfort to agonizing suffering, which keeps the patient in bed through the entire period, and from the effects of which she may not recover until the advent of the next period, thus rendering her a more or less complete invalid. The location of the pain varies. It may be located in the lower part of the hypogastrium, the pelvis, the iliac fossae, the back, or the legs. It may manifest itself as a severe headache or fixed and continuous pain in some other part of the body, accompanying the menstrual period, and not due to some other cause. The location and

time of occurrence of the pain often indicate the seat of the disease. When occurring as much as a week before the flow or when felt in the iliac fossae, it is ovarian in origin; when occurring a much shorter time before the flow, when not relieved by it, and when felt in the hypogastric or umbilical regions, it is due to disease of the body or fundus. When the cervix is involved, the pain is felt in the back. If felt during the intermenstrual period, pelvic inflammation may be suspected.

Treatment.—Dysmenorrhoea is a symptom, and not to treat it as such is a mistake. It may be temporarily relieved without removing its cause, but this is by no means a cure.

All muscular and osseous lesions should be overcome; all displacements of the uterus or prolapse of the ovaries should be remedied; all endometritis, oöphoritis, or pelvic inflammation must be cured; and all conditions that may be disturbing the nervous balance must be removed.

Spasmodic contraction of the cervix is remediable by treatment, and cicatricial contraction can often be relieved by it; but dilatation or an operation may be necessary. Polypi can most readily be removed by an operation; but if the patient will not submit to such treatment, good can be accomplished by osteopathic treatment.

Many cases demand immediate relief. In such

cases the treatment is inhibition over the sensory centers to the uterus at the lower dorsal, upper lumbar, and sacral regions. This not only prevents the passage of painful afferent impressions, but also the passage of efferent motor impulses, and quiets the uterine contractions. The inhibition over the second, third, and fourth sacral nerves relaxes the cervix and allows the free passage of the flow or clots if any are formed. Inhibition of the clitoris acts in the same manner, as it is supplied by the pudic nerves, whose fibers come, for the most part, from the second and third sacral nerves, and possibly from the first also.

Those cases due to cicatricial contraction of the cervix can often be cured by direct treatment to the cervix. It is to be taken between two fingers in the vagina and gently, but thoroughly, manipulated, and any excess of rigidity at the cervico-uterine angle reduced.

Hot applications to the epigastrium and hot Sitz baths will prove useful, especially in those cases due to scanty menstruation or catching cold. They are also valuable in those cases accompanied by a great amount of congestion. This is also relieved by inhibition of the splanchnics by dilating the abdominal blood vessels to accommodate the excess of blood in the pelvis. The limbs should be thoroughly treated, flexed, and rotated inward and outward.

As a routine practice, raising the ribs and deep-breathing exercises should be given, as these are perhaps the most powerful agents of diverting the blood from the pelvis, relieving congestion, and producing a healthy circulation of the pelvic organs, whose circulation is almost as much dependent upon the respiratory motions as upon the motions of the heart.

MENORRHAGIA.

This is an excessive loss of blood at the menstrual period. It may be due to an abnormally long continuance of the flow, or the duration may be normal and the flow abnormally abundant. In diagnosing this condition the usual amount of discharge, as well as the patient's temperament, must be considered. A flow which is normal in one individual would be excessive in another. Robust and plethoric women usually menstruate very freely.

Causes.—These operate by causing or increasing pelvic congestion. They are:

1. Lesions to the lower dorsal, lumbar, and pelvic regions.

2. Uterine diseases. These may be endometritis, metritis, subinvolution, laceration of the cervix, fibroid tumors (especially the submucous variety), polypi, and cancer after the age of thirty-five.

3. Uterine displacements, particularly retro-displacements.

4. Ovarian diseases, either tumors or inflammation.

5. Pelvic cellulitis or pelvic peritonitis.

6. Diseases of heart, lungs, or liver. Such diseases cause general venous congestion, in which the pelvic organs participate.

7. Acute infectious diseases, especially those with a hemorrhagic tendency or associated with blood dyscrasia—as smallpox, measles, scarlet fever, typhoid fever, cholera, etc.—and chlorosis, anaemia, hemophilia, syphilis.

8. Obstinate constipation. In rare instances the rectum has become so impacted as to cause sufficient congestion to produce menorrhagia.

9. Retained portions of placenta or membranes. Hemorrhage from this cause is most apt to occur soon after the ovum is expelled, but may occur for months afterwards. This condition will be suspected if the trouble begins soon after an abortion or natural labor.

Symptoms.—Besides the appearance of the excessive amount of blood, there are weakness, faintness, prostration, rapid pulse, vertigo; and if the flow continues, there will be all the symptoms of anaemia, as pallor, dyspnoea, cold and clammy skin, syncope, etc. If not immediately dangerous, the repeated loss of blood weakens the patient and reduces her power of resistance against other diseases.

METRORRHAGIA.

This is a flow of blood from the uterus independent of the menstrual period. The diagnosis is not difficult, except in those cases in which the hemorrhages are so frequent and long continued that the patient herself cannot tell the normal from the abnormal flow.

The causes of metrorrhagia include all those of menorrhagia, especial attention being called to the retention of the products of conception following abortion or labor at term in young women and to cancer in those who are approaching, passing through, or have completed the menopause. All cases of metrorrhagia near the climacteric demand a thorough examination to determine whether or not cancer exists.

Treatment.—Menorrhagia and metrorrhagia are symptomatic of so many conditions that the treatment is quite varied. All osteopathic lesions are to be corrected; all uterine displacements and inflammation, as well as inflammation of the ovaries and pelvic connective tissue, are to be cured; all acute troubles or diseases of the circulatory and respiratory organs and liver are to be removed and constipation relieved. Pelvic congestion must be removed by inhibition throughout the lumbar region and by expanding the chest and giving deep-

breathing exercises, as described under the treatment of dysmenorrhoea. Patients who are anaemic from frequent and continued bleeding should be given nutritious food, and their digestive and excretory functions should be stimulated.

To stop the hemorrhage and give immediate relief the treatment is to give a quick and severe jerk to the hair covering the mons Veneris. In cases of retained placenta or membranes, as first suggested by Dr. Bolles, manipulation should be given the nipples so as to simulate as nearly as possible the sucking of a child, which causes uterine contraction and expels the retained structures. If this fails, the cervix must be dilated by the finger or an instrument under anaesthesia and the retained tissues removed. Stimulation to the lumbar region, particularly the second, causes a contraction of the blood vessels of the uterus.

An ice bag applied to the hypogastrium or the intra-vaginal or the intra-uterine injection of hot water is often valuable.

LEUCORRHOEA.

This is an abnormal flow from the vulva or an excessive amount of the normal vaginal secretion. It is commonly known as the "whites," and is symptomatic of some local or constitutional disease.

Under normal conditions the vaginal secretion is

just sufficient to keep the parts moist, none of it escaping beyond the vulva. It is acid in reaction, and contains the vagina-bacillus, which is antagonistic to the development of pyogenic and saprophytic germs. Any derangement of the normal vaginal secretion predisposes to infection. The source of the normal secretion is the vaginal walls, and it is formed of desquamated epithelial cells and transuded blood serum. When excessive under natural conditions, white, curdy, or creamy flakes may be found in it. The cervical secretion is a thick, tenacious, clear mucus, which usually closes up the external os. It is alkaline or neutral in reaction.

The source of a leucorrhoea may be the vaginal walls, the cervix, the uterus, or the Fallopian tube.

Causes.—1. Pelvic congestion. This may result from osteopathic lesions, excessive venery, masturbation, uterine or ovarian displacements, exposure to cold, scanty or suppressed menstruation, pregnancy, foreign bodies in the vagina, acute or chronic inflammation of the pelvic viscera, or malignant disease.

2. Constitutional conditions—anaemia, tubercular diathesis, poor nutrition from insufficient food, mental or physical overwork, bad hygienic surroundings, and general venous congestion, such as results from cardiac or hepatic disease.

3. Suppression of other secretions. Should the flow of milk, the menstrual flow, a diarrhoea, or pro-

fuse perspiration be suddenly suppressed, leucorrhoea may be caused.

The abnormal flow may vary in color from the clear cervical, or slightly milky vaginal, secretion to a yellowish (or greenish) purulent, or reddish brown, hemorrhagic discharge. If the discharge contains a large proportion of blood, the condition becomes a metrorrhagia.

A clear, thin, serous discharge may be caused by a simple congestion of the pelvic organs, the discharge of a hydro-salpinx, and sometimes by a cancer. A purulent discharge is most frequently due to gonorrhoea, though a muco-purulent discharge is not infrequent in chronic endometritis. Hemorrhagic discharges are caused by cancer, fibroid tumors, and disease of the cervix or endometrium. Offensive discharges result from ulceration, sloughing, and retained membranes or placental fragments. Cancerous discharges have a peculiar, very offensive, sickening, and characteristic odor.

Symptoms.—These are usually a vague feeling of weakness and lassitude, to which are added the symptoms of the causative condition. If the leucorrhoea is profuse, although it is not hemorrhagic, it leads to anaemia.

Treatment.—Leucorrhoea being symptomatic, the treatment resolves itself into the removal of the cause; and as the cause in no two cases is identical,

the treatment is necessarily different. All osteopathic lesions must be removed. If there is a local organic disease, it must be cured. If simple congestion of the pelvic organs be the cause, the relief of the congestion effects a cure. The congestion is relieved by proper local and spinal treatment. If the leucorrhoea is the result of some constitutional condition, then the treatment is directed to building up the general health, and must consist in general osteopathic treatment, combined with dietetic and hygienic measures. Hydrotherapy will prove a valuable adjunct in these cases.

Leucorrhoea is relieved by strong inhibition over the sacrum and by copious injections of water as hot as the hand can bear immersion in for three or four minutes. These injections relieve congestion and exert an alterative influence upon the uterus.

CHAPTER VI.

Diseases of the Vulva.

MALFORMATIONS.

Various deformities of the parts comprising the vulva are sometimes seen.

Hypertrophy of the labia, especially the labia minora, is occasional, and may be congenital or caused by disease or follow the habit of masturbation. Atrophy of these structures may occur from nondevelopment, but after the menopause a certain degree of atrophy is natural.

The clitoris may be hypertrophied even to the size of a penis. The prepuce of the clitoris may be adherent to the glans, forming a hooded clitoris. This of itself or as a result of the collection of decomposing secretions may give rise to severe nervous reflex symptoms, epilepsy having been caused by such conditions.

The hymen may be absent, but is more frequently imperforate. This prevents the escape of secre-

tions and menstrual blood, by which the vagina, and sometimes the uterus, is greatly distended. It is easily diagnosed by the absence of the orifice of the hymen.

Atresia of the labia may occur, but rarely ever gives rise to troublesome symptoms.

Hermaphrodism is a condition in which an individual possesses both male and female sexual organs. This is due to congenital malformation, and is called "true hermaphrodism" when one or more of the organs of each sex are found in the same individual and "false hermaphrodism" when the organs of only one sex are found, but are so malformed as to resemble those of either sex. So few cases of true hermaphrodism have been found that its existence is denied by some.

In many cases it requires a very close examination to determine the sex of the individual. In doubtful cases the secondary sexual characteristics of voice, development of the breasts, hips, beard, Adam's apple, location of pubic hair, and inclination toward the opposite sex must be considered. Such an individual is called an "hermaphrodite."

CUTANEOUS AFFECTIONS OF THE VULVA.

The vulva is liable to certain cutaneous affections, which present no unusual characteristics, except their location. Of these there are eczema,

lupus, herpes, and others. As herpes may be mistaken for chancroid, it will be described.

" Herpes progenitalis," as it is called in this location, begins as one or more small red spots, upon which vesicles of similar size soon develop. These vesicles are filled with clear serum, and, after their rupture, leave a small, shallow ulcer, with abrupt edges and a clean base.

A chancroid becomes a pustule, discharges pus, its edges are undermined, and its floor is ragged and covered with a dirty, yellowish-green exudate.

The treatment of herpes is cleanliness and the application of the dusting powder prescribed in vulvitis.

VULVITIS.

Inflammation of the vulva is simple, follicular, or purulent which in most instances is due to the specific poison of gonorrhoea.

The causes are lack of cleanliness, irritating vaginal or uterine discharges, dribbling urine, masturbation, excessive intercourse, injury from nails in scratching, worms escaping from the anus and finding their way into the vulva, and gonorrhoeal infection.

The follicular form is confined to the glands of the vulva, while the other forms may attack all the vulvar tissues or be localized to any particular part.

A simple vulvitis may become purulent. Lesions affecting the blood or nerve supply are commonly present.

The inflamed parts are hot, swollen, red, and painful. Sometimes itching is intense. Hypersecretion of mucus in the simple form or a discharge of muco-pus or pus in the purulent form succeeds an initial dryness. Urination is attended by a burning pain. Slight fever is seen in severe cases. In gonorrhoeal vulvitis infection and inflammation of the urethra and the vulvo-vaginal glands are fairly constant. Gonococci will be found in the pus in these cases.

Treatment.—Cleanliness is the first essential. The parts should be bathed every one or two hours with sterile water, or they may be irrigated by using a fountain syringe or cleansed by the use of a Sitz bath. Wet cloths may be applied at night. In gonorrhoeal cases an antiseptic is necessary, and for this purpose a two-per-cent solution of nitrate of silver is best.

After cleansing the parts, a protective, antiseptic, and drying powder, formed of equal parts of powdered boracic acid and oxide of zinc or talcum powder, will hasten the cure. This should be dusted on the parts and a small piece of gauze placed between the labia to absorb the secretions and prevent their contact.

PRURITUS VULVAE.

This is a condition characterized by intense itching of the vulva and frequently of the surrounding tissues also.

Its causes may be direct or reflex.

The direct causes are irritating discharges from the vagina or uterus; local eruptions; stiff, broken, or deformed hairs on labia; pediculi pubis; vulvitis; dribbling of urine, especially diabetic urine—all of which are aggravated by the congestion accompanying menstruation or pregnancy. Sedentary habits, old age, the menopause, and a low state of health are predisposing causes.

Reflex causes are irritation to the sympathetic or cerebro-spinal nerves distributed to these parts. The irritation may be from osteopathic lesions or due to disease of some of the pelvic organs.

Symptoms.—These may occur in intermittent attacks, or there may be a continuous, intolerable itching that compels the patient to scratch herself, which, in turn, increases the irritation. Sleep is often disturbed, the attacks frequently coming on after going to bed; the appetite is impaired; the mind becomes depressed in severe cases; the patient secludes herself, and may be driven to such desperation as to commit suicide. The habit of masturbation is sometimes contracted in the efforts to relieve the itching.

Prognosis.—This is sometimes a very intractable disease, and may continue for months, or even for years.

Treatment.—The location of the cause and its removal are first in order. All osteopathic lesions should be removed; all irritating discharges should be relieved or prevented from passing over the vulva by cleansing douches or a tampon of cotton in the vagina. The parts should be kept dry; friction from any cause should be prevented; applications of the drying powder recommended in vulvitis should be made; strong inhibition over the sacrum should be made to allay itching. Cold applications are also of value for this purpose.

URETHRAL CARUNCLE.

This is a small, extremely sensitive and irritable vascular tumor, which develops at or near the urethral meatus. The growths may be single or multiple, and vary in size from a growth scarcely discernible to a tumor as large as a cherry.

Urethral caruncles may exist without causing symptoms, but usually cause intense pain on urination or copulation; and, occasionally, walking or the mere contact of the clothing is very painful.

Such growths are diagnosed by their location, size, great sensitiveness, and red and vascular appearance.

The treatment is removal of the growth.

VENEREAL WARTS.

These are small, papillomatous growths found upon the external genitals, usually upon the labia minora and about the fourchette; but in some instances they extend up into the vagina, around the anus, or onto the thighs. They may be as small as a pin head; but if neglected, they may, by aggregation, grow as large as a walnut.

They are due to uncleanness, irritating discharges, and frequently occur with gonorrhoea, syphilis, or chancroid. They cause but little or no pain, but by their presence may interfere with urination, defecation, or coition. When occurring on mucous surfaces, they may be mistaken for mucous patches, but are diagnosed from these by the absence of the history or signs of syphilitic infection.

The treatment is removal.

CHANCROID.

This is a local, infectious ulcer transmitted by sexual contact and not infrequently found on the vulva. When on mucous surfaces, it begins as a small, yellow spot, surrounded by a red, inflammatory areola. The macule becomes a pustule, and then an ulcer, with sharply-cut or undermined edges and a dirty-yellow, pus-covered base. The stage of

pustulation may be absent when the chancroid is located on the skin. The ulcer has an abundant purulent discharge. The inguinal glands enlarge and may suppurate.

Treatment.—The ulcer should be freely cauterized with nitric acid and dressed antiseptically.

CYSTS AND ABSCESS OF THE VULVO-VAGINAL GLANDS.

The ducts of the glands of Bartholin may become occluded and an elastic tumor form in the posterior part of the labia majora. The cyst may vary in size from a cherry to a hen's egg.

These glands are also subject to inflammation. Gonorrhoea is the most frequent cause, and often leads to the formation of an abscess. There will be the formation of a tumor, as in a cyst; but it will be attended by redness, pain, heat, and possibly a slight rise of temperature. A drop of pus can usually be squeezed out of the gland duct.

Treatment.—Before the development of pus, cold applications and local relaxation of the tissues may abort the abscess. After pus has formed it should be evacuated.

LABIAL VARICOCELE.

Varicosities of the veins of the vulva, especially those of the bulbs of the vestibule, are sometimes seen as a result of obstruction to the return circulation from these parts by a pregnant uterus, pelvic

tumors, fecal impaction, straining efforts, etc. An enlargement is produced usually in the labium majus, in which the dilated and tortuous veins may be easily felt. A dilated condition of the veins of the vagina and thighs is often also present.

The varicocele may cause a sensation of weight or burning, and the tumor may sometimes grow as large as an orange. Rupture of the veins may occur.

Treatment.—Removal of the obstruction when possible, rest in the recumbent posture, relaxation of the tissues around the veins, and the local application of cold will result in a cure in most instances. If these fail, the veins should be ligated and excised.

PUDENDAL HYDROCELE AND HERNIA.

The tubular prolongation of peritoneum around the round ligament (the canal of Nuck) sometimes fails to grow together and forms a small pouch, in which fluid may collect and form a hydrocele, or a knuckle of intestine or a portion of omentum may prolapse into it and form a labial or pudendal hernia.

The diagnosis and treatment of this condition are similar to that of hydrocele or inguinal hernia in the male.

TUMORS OF THE VULVA.

The vulva, like other tissues, is subject to benign and malignant tumors, which have the same gen-

eral characteristics of similar growths situated elsewhere.

INJURIES TO THE VULVA.

These occur from violence, from falls upon hard objects, from parturition, from rape, and occasionally from the first intercourse.

Should the skin be broken, hemorrhage will be caused, with soreness, tumefaction, and discoloration. If the skin remains intact, there will be extravasation of blood into the tissues, with the other symptoms.

Treatment.—If there is bleeding which cannot be controlled by pressure or hot or cold water, the bleeding vessels should be ligated. The pain and swelling will also be relieved by the applications of heat or cold. If the effused blood is not absorbed or suppuration should occur, surgical measures to remove the clot or open the abscess are in order.

CHAPTER VII.

Diseases of the Vagina.

MALFORMATIONS.

The vagina may be congenitally absent, partially absent, stenosed, or atresic. When congenital, such conditions are often associated with defective development of the uterus.

Stenosis, or atresia, may also result from contraction following sloughing or from adhesions forming between the inflamed vaginal walls. Stenosis may be sufficient to interfere with copulation or parturition. Atresia causes retention of the vaginal secretions and of the menstrual flow.

Occasionally the vagina is double, and is associated with a double uterus in most instances.

The treatment of these conditions is surgical.

VAGINITIS.

Inflammation of the vagina occurs usually in a simple or catarrhal, a purulent or gonorrhoeal, and

a follicular form. Other varieties of inflammation are described as granular, adhesive, emphysematous, etc.; but these are rare, and, when they do occur, are secondary stages of the three principal varieties.

Causes.—1. Chronic congestion is the most important predisposing cause, and results from osteopathic lesions, uterine disease or displacement, tumors, pregnancy, etc.

2. Irritation from exposure to cold, discharges from the uterus or through fistulae from other organs, excessive intercourse, or masturbation.

3. Injuries from rape, foreign bodies, caustics, or instruments.

4. Gonorrhoeal infection is the cause of the purulent or specific form, although a simple vaginitis may become purulent, but not specific, without infection by gonococci.

5. Too severe or too frequent local treatment may cause a mild simple vaginitis.

Pathology.—The blood vessels are congested; the surface is red, swollen, painful, and, during the first stages, dry. The dryness is soon followed by an increase of secretion, which in severe, simple, and always in gonorrhoeal, cases is purulent.

Follicular vaginitis is usually confined to the follicles of the upper portion of the vagina.

Owing to the fact that the vaginal mucous mem-

brane is very similar to the skin in structure, the deeper tissues are protected by the several layers of stratified epithelium upon its surface, and the inflammation rarely extends to them.

Symptoms.—These are constant, burning pain in the vagina, frequent and painful urination, pain on intercourse, itching and burning about the vulva, heaviness and weight within the pelvis, backache, an abundant muco-purulent or purulent discharge, malaise, anorexia, and slight fever.

Diagnosis.—The absolute diagnosis of gonorrhoea in a woman is almost, if not altogether, impossible, unless it is found that she has had intercourse with a man suffering from the disease.

A severe urethritis may be caused in the male by the pus from a simple vaginitis; so that it by no means follows that urethritis in the male is caused by gonorrhoea in the female.

Prognosis.—A simple vaginitis is not a serious trouble; but when gonorrhoeal, it may lead to serious and fatal consequences by extension through the uterus and tubes and the infection of the pelvic peritoneum. If the eye should become infected, a gonorrhoeal conjunctivitis will be caused, which is a very serious matter, so far as sight is concerned. Gonorrhoeal rheumatism is also sometimes caused.

Treatment.—In this trouble cleanliness is paramount. Douches of warm, sterile water or boracic-

acid solutions should be used in the simple or follicular cases, but should not be used in the gonorrhoeal cases when it is possible to obtain cleanliness without them. In gonorrhoeal vaginitis the douches often carry the germs up to and into the cervix and cause an extension of the disease to the cervix and uterus. Cleanliness is procured by the use of a Sim's speculum and swabbing out the vagina with absorbent cotton or sterile gauze. In these cases an antiseptic is necessary, a two-per-cent solution of nitrate of silver being preferable, and should be applied to the vaginal mucous membrane with a small mop of cotton or gauze after the cleansing swabbing, which should be given every four to six hours during the height of the inflammation. A small piece of gauze well sprinkled with a powder of boracic acid and talcum powder will prevent the apposition of the vaginal walls, will have an antiseptic effect, and will drain the secretions from the vagina.

In the simple cases a continuous current of hot water within the vagina is useful.

Inhibition over the sacrum and gentle treatment of the limbs, raising the ribs, and deep-breathing exercises should be given to allay the inflammation and divert the blood from the vagina.

In all cases the patient should be kept quiet and given light or liquid diet.

VAGINISMUS.

This is a painful reflex contraction of one or more of the muscles of the vagina. The contraction is most often occasioned by attempts at coition, rendering this act very painful or impossible, or may be produced by a digital or instrumental examination.

Its causes are vulvitis, vaginitis, excoriations about the vulva, urethral caruncles, sensitive remains of the hymen, piles, pelvic inflammation, awkwardness, or nervousness.

Irritations to the vaginal nerves from osteopathic lesions are frequently present.

The treatment is the removal of the cause, dilatation of the vagina, and strong inhibition over the sacrum.

VAGINAL FISTULAE.

Fistulae, or abnormal openings, may occur between the vagina and bladder, urethra, ureter, or rectum. They are caused by sloughing or tearing of the vaginal walls during parturition, or from instrumental injuries, ulceration from foreign bodies, cancerous ulceration, and occasionally from operations.

The symptoms are the escape through the vagina of the contents of the viscus into which the fistula

opens. The vaginal opening is sometimes difficult of detection. It may be found by injection the organ into which the fistula opens with a colored fluid and by using a speculum watch for its escape into the vagina. Milk is the fluid most frequently used for this purpose.

The treatment is surgical.

PROLAPSE OF THE VAGINAL WALLS.

Prolapse of the anterior vaginal wall, which also involves the bladder, is called "cystocele," and prolapse of the posterior vaginal wall, which often carries with it the anterior wall of the rectum, is called "rectocele." This is a disease which is extremely rare in women who have never borne children; consequently among its causes childbirth stands first. Childbirth causes relaxation of the vagina, loss of tone, subinvolution or increase of weight, relaxation or rupture of the perineum, or loss of support—a combination of conditions favorable to prolapse.

Loss of tone and increase of weight are also caused by excessive intercourse, uterine displacement, or disease, especially prolapse, and by osteopathic lesions involving innervation and circulation to the vagina.

Straining efforts or constipation predispose to rectocele; distention of the bladder, to cystocele.

Physical Signs.—In the dorsal position, on inspec-

tion, the vaginal orifice is found gaping, and within it will be seen a rounded swelling, forming its anterior or posterior walls, or both walls may be formed of such a swelling. The tumor grows larger with bearing-down efforts.

Symptoms.—There is a bearing-down sensation, and often the patient's own diagnosis is "falling of the womb." When a cystocele exists, micturition is difficult; the bladder is imperfectly emptied on urination; and the retained urine may decompose and cause a catarrhal cystitis, with frequent and painful urination. Often it will be necessary for the patient to press the prolapsed wall back into the vagina before the bladder can be emptied. In rectocele, defecation may be difficult because of the anterior pouching of the anterior rectal wall. Constipation, proctitis, tenesmus, and hemorrhoids are common.

Treatment.—If the perineum is ruptured, it should be repaired. The prolapsed walls should be replaced, congestion relieved, and tone restored by local treatment and spinal stimulation. The local treatment will consist of sweeping movements around the vagina for tonic and diverting effect and lifting the uterus as high in the pelvis as possible, by which the vagina is lengthened and the blood forced out of its walls.

Constipation should at first be relieved by ene-

mata, and as soon as possible cured by proper treatment.

The perineum should be strengthened by adduction and abduction of the flexed knees against resistance and the perineal muscle contraction exercises.

INJURIES TO THE VAGINA.

The vagina is sometimes injured by the first intercourse, at which time the hymen is usually, though by no means always, torn, and may be the seat of severe, though very rarely fatal, hemorrhage. Tears of the vagina from this cause are not frequent, but are serious when they do occur.

Parturition is the most prolific cause of vaginal injuries, and may produce tears which extend through its walls and into the surrounding connective tissue.

Violence—as from falls, the introduction of foreign bodies, or obsterical forceps—is not infrequent.

Injuries to the vagina, if the mucous membrane is torn, are attended by hemorrhage, pain, swelling, difficulty and pain on locomotion, and dyspareunia. The hemorrhage may be slight or sufficient to prove fatal.

Treatment.—All bleeding should be controlled by hot or cold applications or the ligation of the bleed-

ing vessels. The wound should then be treated antiseptically.

FOREIGN BODIES IN THE VAGINA.

Almost all conceivable objects small enough to enter the vagina have been found here. Pessaries of various kinds or sponges or tampons may have been placed there by physicians and forgotten, and the patient herself may have introduced articles for various reasons.

By their presence they give rise to pelvic pain, painful urination, painful coition, and an offensive discharge. Ulceration, fistulae, gangrene, and peritonitis have been caused by them.

The treatment consists in the removal of the object and the relief of the inflammation. When the foreign object has become imbedded in the tissues, its removal may be quite difficult.

CHAPTER VIII.

Diseases of the Uterus.

MALFORMATIONS.

It is a rare occurrence for the uterus to be entirely absent. It may be represented by a fibrous cord, a small muscular mass, or it may more nearly approach the normal and form what is called an "infantile uterus."

In these cases there is not only defective development of the remaining sexual organs, with interference with ovulation and menstruation, but general development is frequently impaired, and nervous and mental disturbances may be present.

The following malformations are due to more or less incomplete coalescence of the Müllerian ducts:

Uterus unicornis is a condition in which only one-half of the uterus develops, the other half being absent or rudimentary.

Uterus bicornis is a condition in which each cornu is distinct and separated by a notch externally

and internally by a partition which may extend as low down as the external os.

Uterus didelphys is the development of two distinct uteri, each with a single tube and ovary. The vagina is usually double.

Uterus septus is an apparently normal uterus, with a partition dividing its cavity.

Atresia of the uterus is sometimes seen, and may be congenital or acquired as the result of adhesions forming after inflammatory affections of the cervix or body of the uterus.

Absence, rudimentary development, and atresia cause amenorrhoea, which may or may not be accompanied by the symptoms of approaching menstruation. An infantile uterus is attended by scanty menstruation, often dysmenorrhoea and sterility. The other conditions are not recognized, as a rule, except on post-mortem examination or in the search for the cause of some abnormality of menstruation, pregnancy, or parturition.

Treatment.—In cases of infantile uterus the treatment is to stimulate all the uterine functions. In the other conditions treatment is unnecessary in the absence of symptoms; and when these do arise, the treatment is surgical.

ACUTE ENDOMETRITIS.

This is an acute inflammation of the mucous

membrane of the uterus. In every case more or less of the muscular tissue of the organ is involved; and under this head will also be considered metritis, or inflammation of the uterine walls.

By some authors this disease is classified into cervical and corporeal endometritis, according to the location of the inflammation. While it is true that the cervix is frequently affected alone, still such a classification is an unnecessary refinement both in regard to diagnosis and to treatment.

Causes.—1. Osteopathic lesions are great predisposing causes by interference with innervation and blood supply and lowering local vitality. Acting in the same manner are displacements or congestion from any cause.

2. Exposure to cold, particularly during a menstrual period. This causes an interference with a natural condition, which easily passes into an active inflammation.

3. Labor or miscarriage, followed by infection by pathogenic germs. This is one of the most frequent causes. The period of involution of itself is a predisposition on account of the injuries to the uterus and congestion following delivery at term or prematurely.

4. Violence to the mucous membrane of the uterus from operations, pessaries, or instrumental or manual examinations.

5. Extension of a vaginitis, either simple or specific.

6. Intense sexual excitement, excessive indulgence, or coition during a menstrual period.

7. Exanthematous diseases are often accompanied by endometritis.

A condition of lowered vitality from disease, overwork, or poor food predisposes to the disease.

Pathology.—The mucous membrane in the mild cases is congested and somewhat swollen, and the epithelium is desquamated. In more severe cases the congestion is more intense, the mucous membrane is red and swollen, and its surface is covered with a muco-purulent exudate. The uterus is swollen and soft, its blood vessels are dilated, and its tissues are infiltrated with leucocytes and serum. Microörganisms are abundant. In severe cases the inflammation may extend to the pelvic connective tissues or to the peritoneum through the Fallopian tubes or by means of the lymphatics. In some cases following puerperal infection abscesses have formed in the uterine walls.

Symptoms.—These may vary from a slight sense of heaviness and pain in the pelvis, accompanied by but little leucorrhoea and the slightest constitutional disturbance, to very severe and aggravating manifestations. There may be pelvic pain and heaviness, pain in the back and across the lower

part of the abdomen, vesical and often rectal tenesmus, and fever from 99 to 101 to as high as 103 to 104. The abdomen may become tender, tympanitic, and vomiting and diarrhoea may be present. A thin and serous leucorrhoea appears and in a few days becomes thick and purulent or blood stained. In gonorrhoeal cases the discharge is purulent, thick, and creamy, and may contain blood. The discharge is frequently irritating to the parts with which it comes in contact. The vagina is often tender, hot, and swollen from sympathy, or an accompanying vaginitis.

On *physical examination* the uterus is found slightly swollen, tender, and a little lower in the pelvis than normal. If pelvic cellulitis complicates the case, the uterus may be fixed. The cervix is swollen, and the external os is slightly patulous. If an examination be made with a speculum, the discharge may be seen escaping from the external os.

Prognosis.—Mild cases recover in a few weeks, but repeated mild attacks may lead to chronic endometritis. In all cases the possibility of an extension and the production of salpingitis, pelvic cellulitis, or pelvic peritonitis must be considered. In some cases of puerperal endometritis a fatal result is seen; but it is owing to the general infection, and not to the local inflammation.

Treatment.—If the case is at all severe, the patient

must be confined to bed and allowed only light and semiliquid diet. Hot applications should be made to the hypogastrium and perineum or hot Sitz baths should be given. Vaginal injections as hot as can be comfortably borne should be given every three or four hours during the active stages of the inflammation and warm injections given every six hours after this to cleanse the vagina of any discharge that may accumulate there. Keep the bowels open with daily enemata of warm water.

The osteopathic treatment consists of inhibition over the lower dorsal and lumbar regions to relieve congestion and pain. The limbs must also be gently relaxed by flexion and circumduction, and the muscles must be thoroughly manipulated. Deep breathing should be obtained by raising the ribs and keeping them up while the patient exhales. Appropriate treatment must be given to control any fever that may be present.

No local treatments should be given until the active inflammation has subsided, for fear of an extension of the trouble. Intra-uterine injections are prohibited for the same reason.

CHRONIC ENDOMETRITIS.

This, like acute endometritis, may involve the cervix or the body alone or both cervix and body. It most usually affects the cervix alone, because it

is more subject to injuries, as in childbirth or coition, and to friction whenever there is a prolapsed condition of the uterus. Next in frequency the whole uterine mucous membrane is affected, and most rarely the body alone.

Pathology.—The mucous membrane is congested, dark red in color, soft; and, owing to its swollen condition, it may protrude through the external os and form a red and inflamed area around it, which was at one time thought to be ulceration, but which constitutes the condition now called "erosion" or "granular os." The glands of the cervix are hypertrophied and in a condition of hypersecretion. The ducts of the glands often become occluded, and small cysts filled with the glairy, viscid, cervical secretion are formed. These cysts vary in size from a pin head to a pea and often project beyond the external os.

When the body is affected, the mucous membrane is thickened, soft, and contains many enlarged blood vessels, or it may be raised in ridges from the cystic and hypertrophied glands, or there may be patches of granulations studded over it. Changes eventually take place in the walls of the uterus, most probably from the congestion consequent upon the inflammation. There is a proliferation of connective tissue between the muscle bundles, causing the uterine walls, including the cervix, to thicken

and the organ to become enlarged. This condition may be confined to the cervix or may affect the whole organ. It is known as "chronic parenchymatous metritis" and "areolar hyperplasia" by different authors. As a secondary change this proliferated connective tissue may contract and the uterus be reduced in all its dimensions.

Causes.—1. Osteopathic lesions by interfering with innervation and blood supply cause or allow a congested condition of the pelvic organs. The congestion of itself, if continued, will cause a chronic inflammation, or, more properly, a proliferation of connective tissue. Should this change not be produced, the congestion is a great predisposing condition to more active inflammation.

2. Constitutional debility from disease, overwork, poor food, repeated parturition, or continued lactation are important predispositions.

3. Impeded respiration by tight lacing or suspending clothing from the waist. Pelvic circulation is to a large extent dependent upon deep breathing, and anything that interferes with this is a menace to the proper blood supply of the pelvic organs.

4. Pelvic inflammation, ovaritis, cellulitis, peritonitis, and displacements—all these favor chronic congestion.

5. Repeated attacks of acute endometritis.

6. Injuries to the cervix or uterus, particularly lacerations of the cervix. Other injuries may be from premature or normal births, difficult or complicated labors, instrumental examinations, pessaries, or attempts at abortion.

7. Septic infection following premature labor or labor at term.

8. Subinvolution. This is a frequent cause.

Symptoms.—These are local, due to the direct effect of the inflammation, and are constitutional when reflex from the irritation to the abundant supply of pelvic sympathetic nerves.

Leucorrhoea is often the first symptom noticed by the patient, and the one which causes her to seek relief. If this is from a cervical inflammation, the fluid resembles the raw white of an egg; is thick, glairy, and tenacious. If it is from inflammation of the body, it is thin, serous, milky in appearance, or, in the most troublesome cases, purulent. Again, the discharge may be brownish or reddish from admixture with blood. It is sometimes very irritating to the parts with which it comes in contact, and causes almost unbearable burning or itching.

Pain or discomfort is common. There may be a sense of heaviness, weight, bearing-down or cramp-like pains in the uterus. Pain in the back, loins, limbs, and hypogastrium is frequent. The irrita-

tion may extend to the bladder and cause frequent urination, and possibly a severe degree of dysuria. Dysmenorrhoea is frequently present just before and during the period.

Menstrual disorders are an important symptom. No particular disorder is constant; for the flow may be scant, profuse, irregular, suppressed, or, as is often the case, prolonged and painful.

Sterility is a frequent accompaniment. Not only does the inflamed mucous membrane form a poor place for the lodgment of the ovum, but the leucorrhoea has a tendency to destroy or dislodge the spermatozoa.

The reflex symptoms are some of the most distressing produced by the disease. This is not to be wondered at when the extensive sympathetic connection is remembered. The appetite is lost or capricious, and digestive disturbances are present, even to nausea and vomiting. Constipation, headache (particularly in the occiput), disorders of vision, pains in the eyes, irritability of temper, restlessness, sleeplessness, melancholia, hysterical manifestations, mental and physical fatigue, and breathlessness on exertion may all be found. All of these symptoms are not found in every case, but a number of them will be present. In some cases the mammary glands may become tender, the areolae may become more pigmented and extensive; and

these symptoms, in connection with the nausea and vomiting and increase in the size of the uterus, may lead to a mistaken diagnosis of pregnancy.

On *physical examination* the cervix is found to be enlarged and tender; the os, somewhat patulous, as a rule; and the soft, protruding mucous membrane studded with the enlarged and cystic glands (the ovula Nabothi) can be felt. If the body is involved, the uterus is enlarged and tender on pressure. If a speculum be introduced, the os will be found filled with a thick, tenacious plug of mucus, or pouring from it will be the discharge.

Diagnosis.—Chronic endometritis must be differentiated from fibroid tumors and from cancer. The first offers but slight difficulty of diagnosis, as a tumor, if present, will be discovered on careful bimanual examination. Chronic endometritis frequently exists with a fibroid. In the latter case the diagnosis is sometimes more difficult. Cancer occurs so rarely before the age of thirty-five that its existence may be almost positively eliminated in a woman who has not reached that age. Cancerous tissue is notable for its friability and tendency to bleed, and is accompanied by an abundant thin, watery, or purulent and very offensive discharge. The early diagnosis of cancer is a matter of such importance that, if the case can be decided in no other way, a piece of the tissue should be clipped from the cervix and

subjected to a microscopical examination by a competent pathologist.

Treatment.—In this as in every other affection the treatment should begin by a search for, and a removal of, the cause. For this reason a routine treatment cannot be given, no two cases presenting the same features.

All osteopathic lesions—osseous or muscular, primary or secondary—must be corrected; and the general health must be restored by appropriate treatment, diet, and exercise. In all cases corsets should be interdicted, the clothing suspended from the shoulders, and the abdominal muscles toned up. Any tumors or acute or chronic inflammation of the pelvic tissues should receive appropriate treatment, and all displacements should be corrected.

Pain and discomfort are relieved by gentle relaxation throughout the lower dorsal, lumbar, and sacral regions, followed by inhibition in the same regions, particularly from the tenth dorsal to the first lumbar and the first four sacral nerves. The irritation to the bladder is relieved by inhibition over the second, third, and fourth sacral nerves.

The menstrual disorders should receive treatment as indicated under their respective heads.

The reflex constitutional symptoms usually subside under general treatment, it rarely being necessary to give specific treatment for the relief of these symptoms.

Besides the local treatment necessary for the correction of displacements or relief of inflammation, such treatment will prove beneficial in all cases. It should consist in bimanually moving the uterus in all directions—gently, but thoroughly—and in manipulating the organ, both cervix and body, between the external and intra-vaginal hands by alternate pressure and relaxation gently applied and by circular motions executed by the external hand, while the intra-vaginal fingers steady the organ and apply counter pressure. The effects of these treatments must be studied; and if no irritation is excited, the treatment may be given as often as three times a week. If irritation is caused, it should be allayed by spinal inhibition and allowed to subside before the treatment is repeated. Keep the patient quiet and in a recumbent posture as much as possible. Let the diet be light, but nutritious.

The cystic glands in some cases will require opening through a speculum, the opening to be done with a bistoury or some other sharp-pointed instrument. The operation should be followed by a copious douche of hot water.

Prognosis.—Relief can almost invariably be given, but to effect a complete cure in cases in which there is an extensive laceration of the cervix an operation to repair the laceration will be necessary. It will require from two to six months to receive all the benefit obtainable from osteopathy.

LACERATION OF THE CERVIX.

This is a condition in which the cervix is torn. The tear occurs at the external os, and may involve the whole thickness of the cervix. It may extend up to the cervico-vaginal junction, and sometimes extends beyond this to the connective tissue posterior to the uterus or to the bladder anteriorly. The laceration may be only in one direction, unilateral; in two directions, bilateral; or in three or more directions, stellate. Anterior or posterior lacerations are rare.

Causes.—1. Rigidity of the cervix. This may result from cicatrices, cervical endometritis, deficient development, or may be relative from early rupture of the membranes and the absence of the dilating force of the bag of waters.

2. Rapid delivery. This may force the child through the cervix so rapidly that proper dilation cannot occur.

3. Abortions. These occurring even in the first few months of pregnancy, at a time when the cervix is unprepared for dilation, are sometimes responsible for lacerations.

4. Operations. The use of the forceps, particularly before the cervix is properly dilated; artificial dilation for purposes of digital examination or curettement; and incisions of the cervix for dysmenorrhoea are not uncommon causes.

Consequences.—Lacerations afford an immediate

opportunity for infection of the pelvic structures. Cellulitis is not infrequent in deep tears. If the laceration does not spontaneously unite, the lips of the tear separate. The mucous membrane is then exposed to injury from coition and friction against the vaginal walls. It becomes congested, red, and swollen. The swelling causes it to roll out, and a larger surface becomes exposed. The cervical glands hypertrophy and secrete a glairy mucus. Some become obstructed and form small cysts filled with this material, resembling the white of an egg. Subinvolution, corporeal and general endometritis (with their associated conditions and complications), eversion of the mucous membrane of the cervix, hypertrophy and hypersecretion of its glands, and general pelvic congestion are produced.

By no means all lacerations are followed by these conditions. The majority are single or double tears, and heal, leaving only a small amount, if any, of cicatricial tissue in the wound, which causes no trouble. It is only when there are eversion, hypertrophy, and cystic formation of the cervical mucous membrane or when there is a large amount of cicatricial tissue in the wound that symptoms arise.

Symptoms.—These are practically identical with the symptoms of chronic endometritis.

Diagnosis.—On digital examination the cervix is

found enlarged; and, instead of the transversely oval slit, the os is patulous, the tears radiating from it; and the hardened and tender tissue in the angles of the lacerations will be felt. The everted mucous membrane is soft; and in it small, hard bodies, the gland cysts, will be felt.

On examination with a speculum, the red, raw-looking mucous membrane, studded with small cysts, will be seen protruding from the os, which is probably filled with a plug of tenacious mucus. The radiating lacerations will also appear. In order to ascertain the original contour of the os it may be necessary to fix a tenaculum in each lip of the laceration and approximate the separated surfaces. By this the redundance of mucous membrane can also be appreciated.

Differential diagnosis is similar to that of chronic endometritis.

Prognosis.—A subsidence of symptoms follows osteopathic treatment in most cases. In some of long standing and a large amount of enlargement of the cervix and eversion of the mucous membrane an operation is a preferable procedure.

Treatment.—This is identical with that of chronic endometritis, of which lacerations are a frequent cause.

SUBINVOLUTION.

This is a condition in which the uterus fails to return to its normal condition after parturition, but remains large, heavy, congested, and with softened walls and thickened mucous membrane. As a result of increase in weight and loss of tone, the organ is low in the pelvis, and is often retro-displaced.

Its causes are lesions interfering with innervation or blood supply, a previous endometritis, endometritis following delivery, exhaustion from prolonged labor, hemorrhage, or some constitutional disease, and especially getting up too early after childbirth.

Symptoms.—These are a feeling of weight and heaviness in the pelvis, backache, continuance of the lochial discharge, or a profuse leucorrhoea, continued weakness, anorexia, and anaemia.

The condition is recognized when, after the second month after childbirth, these symptoms are present, and the uterus is found large, flabby, low, and retro-displaced.

Treatment.—All lesions must be corrected. General treatment must be given for systemic tonic effect; stimulation over the sacrum, to the breasts, and local treatment by direct manipulation of the organ, for local tonic effect.

The diet must receive attention, and should be light and nutritious.

SUPERINVOLUTION, OR ATROPHY OF THE UTERUS.

This condition is natural after the menopause, but is often produced prematurely. It may follow parturition, and is no doubt often a secondary stage of subinvolution; it may be caused by endometritis, operations on the cervix, or the removal of the ovaries or their degeneration by disease.

The uterus is small; its cavity may not measure more than an inch or an inch and a half in depth.

Scanty menstruation, dysmenorrhœa, headaches, nervousness, slight melancholia, and general debility may result. In some cases a premature menopause is caused.

Treatment.—This should consist in building up the general health, the removal of the cause (if it can be found), stimulation of the uterine functions, and relief of the symptoms.

CHAPTER IX.

Displacements of the Uterus.

It must be remembered that the uterus possesses a greater degree of mobility than any other internal organ of the body. Its position is normally changed by every respiratory act, descending with inspiration and ascending with expiration. It is also pushed backward by a full bladder, while a full rectum presses it forward. Every change of posture also affects it. (For correct position and amount of mobility, see Chapter 1.)

To constitute a displacement the condition must be continuous and fixed. Should the uterus become fixed in what is called its "normal position," such a condition would be pathological. Before diagnosing a displacement the condition of the bladder and rectum should be known, for it is possible for a retroversion to disappear after emptying a distended bladder and for an anteposition to be cured by emptying an impacted rectum.

Displacements occur in an anterior, a posterior, and a downward direction. The anterior and posterior displacements may at the same time be lateral, and an antero-lateral or a postero-lateral displacement may be produced. Of the anterior, posterior, and lateral displacements, flexions and versions are described.

A flexion is a condition in which the uterus is bent and the angle existing between the body and the cervix is disturbed. This usually occurs at the cervico-corporeal junction, but may occur elsewhere. Either as a cause or an effect of the flexion there is a diseased condition of the uterine tissue at the point of flexure, and a twofold pathological condition is thus produced.

A version is a turning of the uterus as a whole, the angle between the cervix and the body not being disturbed.

ANTEFLEXION.

This is a condition in which the uterine body is bent forward on the cervix, which occupies its normal position; or in which the cervix is bent forward upon the body, which remains in proper place; or in which both body and cervix are bent forward. The first of these is called "corporeal anteflexion;" the second, "cervical anteflexion;" and the last, "cervico-corporeal anteflexion." Anteflexion is also classified by some into first, second, and third de-

grees, according to the angle produced. Such classification is of but little practical value.

This is the most frequent form of displacement, probably because it is favored by the normal anteflexion, in which position the uterus is kept by abdominal pressure and the attachment anteriorly of the round ligaments. It is more frequently seen in virgins and nulliparae than in those who have borne children.

The consistence of normal uterine tissue is such that if the organ be flexed it will spontaneously return to its original position when the pressure is removed. In every case of anteflexion there must occur a weakening of tissue at the point of flexure, or the normal tissue rigidity must be overcome.

Causes.—1. Osteopathic lesions to lower spine and pelvis. These produce a great predisposition to displacements (a) by causing loss of uterine tone or relaxation of ligaments, nearly all of which contain uterine muscular tissue; (b) by causing contraction of the sacro-uterine and round ligaments, which are very rich in involuntary muscular fibers; (c) by interfering with vaso-motor nerves, causing congestion and hyperplasia, with consequent increase in weight.

2. Endometritis. This is one of the chief agencies in weakening the tissues, the normal muscular and submucous tissue being replaced by hyper-

trophied glandular and hyperplastic areolar tissue. At the same time a corporeal endometritis increases the weight of the uterine body, causing it to tip forward. Acting in the same manner are subinvolution and continued congestion.

3. Inflammatory adhesions. These are usually formed of cellular tissue, and sometimes of peritoneum. In most cases they are attached to the uterus at the cervico-corporeal junction and pass backward toward the sacrum, in which direction their point of attachment is drawn. These adhesions are one of the most frequent causes of anteflexion. Adhesions may also be formed anteriorly, which either pull the fundus forward or immobilize the cervix so that it cannot recede when the fundus is forced down upon it from intra-abdominal pressure.

4. Increased abdominal pressure. This may be from tight lacing, muscular efforts, coughing, tumors, or ascites.

5. Impacted rectum. This in rare instances may push the cervix forward.

6. Errors in development. These are usually congenital.

Symptoms.—The most prominent symptoms are dysmenorrhoea, sterility, irritable bladder, and reflex nervous disturbances.

Dysmenorrhoea is thought to be due to obstruction to the egress of the menstrual fluid as a result

of the bend in the cervico-uterine canal. Proper attention has not been given to the irritation of the cervico-uterine ganglion as a cause of dysmenorrhoea in these cases.

Sterility is due to the obstruction to the entrance of the spermatozoa into the uterine cavity. Endometritis and leucorrhoea are often associated with anteflexion, and they doubtless have something to do with the cause of sterility.

Irritability of the bladder is most often expressed by frequent urination and tenesmus. This is due to the mechanical irritation of the anteflexed fundus preventing full distention of the bladder and to reflex irritation, owing to the intimate connection between the uterine and vesicular ganglia.

The nervous disturbances are varied. Among them are headache, backache, epigastric pain, dyspepsia, disturbances of vision, etc.

Leucorrhoea is a frequent symptom, while a predisposition to abortion and excessive nausea and vomiting after conception is engendered.

Diagnosis.—In no case should a diagnosis be made only from the direction in which the cervix is pointing. In most cases it has a normal direction, and occasionally it points forward and downward, when without a further examination a retroversion would be suspected. If one or two fingers be introduced into the vagina and counter pressure be made from

above, while the finger is swept around the vaginal vault about the os internum anteriorly, the fundus can be felt. Its presence here must be verified by a careful bimanual examination to prove its absence from its normal position. The angle between the body and the cervix is felt to be more acute. Occasionally in fat women the examination is facilitated by placing the patient in Sim's position, when the fundus and the decrease of the angle between the body and the cervix can be more distinctly felt.

In cases due to an inflammation of the tissues posterior to the uterus the cervix is higher than normal and is directed forward; its mobility is impaired; and, on careful bimanual or rectal examination, the cicatricial bands can be palpated.

The presence of a fibroid tumor can usually be determined by palpation, but in rare instances the diagnosis is made more certain by the use of a sound.

Treatment.—The first step in the treatment is the removal of all osteopathic lesions. Endometritis should be treated as indicated elsewhere. All conditions increasing intra-abdominal pressure should be avoided, such as tight lacing, excessive muscular efforts, etc.; all clothing should be suspended from the shoulders; constipation should be overcome; and the general health should be built up.

The internal or local treatment is of great importance, for in the majority of cases cicatricial

bands are responsible for the displacement. These are usually attached to the posterior surface of the uterus near the point where the peritoneum is reflected from its posterior surface, and pass backward and outward to the front and sides of the sacrum, either on one side or both sides. Such bands must be relaxed. This is best accomplished by placing two fingers of the left hand in the posterior vaginal vault behind the cervix and then placing the finger tips of the right hand behind the uterus from above. The fingers of the two hands are to be approximated and the uterus pushed forward until the patient warns the operator to stop, as the pain may be a little severe. While the fingers in the vagina press the uterus forward and stretch the adhesions, they may be further relaxed by gentle circular or transverse manipulations executed by the fingers of the external hand. This treatment may be repeated as soon as the effects of the previous treatment have worn off. If any irritation is caused, it can be relieved by inhibition over the lower dorsal and lumbar regions, the sensory uterine centers.

By somewhat similar means anterior adhesions drawing the fundus forward can be relaxed. The process is simply reversed. The internal fingers are placed in the anterior vaginal vault and the uterus is pressed backward, the external hand assisting and manipulating as before.

The uterus may be straightened out by the internal fingers pressing the apex of the angle forward, while the fundus is pressed backward by the external hand.

Tone is imparted to all the pelvic structures by slight stimulation over the sacrum. This should not be given during pregnancy, as there may be danger of causing abortion.

ANTEVERSION.

This is a condition in which the fundus of the uterus is turned forward and downward, while the cervix passes upward, there being no change in the angle formed between the cervix and the body.

This is neither so frequent nor so troublesome a condition as anteflexion.

Causes.—1. Osteopathic lesions operating as in anteflexion.

2. Endometritis, congestion, subinvolution, tumors, pregnancy, etc. All of these conditions increase the weight of the uterus and cause it to tip forward when standing or sitting.

3. Inflammatory adhesions. These may be in the anterior portion of the pelvis and draw the fundus forward and downward, or they may be along the course of the sacro-uterine ligaments and draw the cervix upward, the tissues not being diseased or the tissue resistance overcome, as in anteflexion.

4. Increased abdominal pressure, by which the fundus is forced downward; tight clothing, muscular efforts, ascites, tumors, etc.

5. Relaxation of the abdominal walls and the consequent weakening of their sustaining power.

Pathology.—The uterus is enlarged, congested, and in a state of chronic inflammation. Adhesions, either anteriorly or posteriorly, may be present, or a tube or ovary may be bound forward to the anterior pelvic wall. From lack of use the sacro-uterine and round ligaments are retracted, preventing spontaneous replacement; and as a result of the constant tension the vesico-uterine ligaments are stretched and relaxed.

Symptoms.—These are to a large extent due to the associated chronic endometritis. The symptoms are not as pronounced and constant as they are in anteflexion. Marked cases of anteversion may persist for a long time and produce but few and slight, if any, symptoms.

Frequent micturition and irritability of the bladder are caused by the pressure of the anteverted fundus upon the bladder.

Dysmenorrhoea and sterility may be caused by the closure of the os from its close apposition to the posterior vaginal wall and the chronic endometritis. In some cases in which the fundus points downward and is lower than the cervix it will re-

quire more powerful uterine contractions to expel the flow against the influence of gravity, and this may cause pain.

Metrorrhagia and leucorrhoea are occasional symptoms, and are doubtless largely due to the associated chronic endometritis and congestion.

An irritable condition of the rectum, in rare instances amounting to tenesmus, may result from the pressure of the cervix against the rectum.

Diagnosis.—On making a vaginal examination, the cervix is reached with difficulty. It is higher than normal, is directed backward toward the hollow of the sacrum, and occasionally is directed somewhat upward. On passing the finger forward to the anterior vaginal vault, the anterior surface of the body can be felt passing forward toward the symphysis pubis. A careful bimanual examination should now be made to confirm this position.

Treatment.—This is directed toward the removal of the cause, the relief of the associated congestion and inflammation, and such mechanical means as will restore the uterus to its normal position and maintain it there.

The osteopathic lesions are to be removed; the endometritis, subinvolution, etc., are to be treated as indicated under their respective heads; the inflammatory adhesions or contracted ligaments are to be treated, as in anteflexion, according to their

location; the abdominal muscles are to be toned up by direct treatment.

For relief of dysmenorrhoea, metrorrhagia, and leucorrhoea, see the articles on these subjects. Vesical irritability and rectal irritability are relieved by replacing the uterus and inhibition over the second, third, and fourth sacral nerves.

The replacement of the uterus is effected by the bimanual method. Two fingers of one hand are passed into the anterior fornix of the vagina, and the fundus is pressed upward as far as possible. The other hand is now placed upon the abdomen, and an attempt is made to approximate the fingers of the two hands in front of the fundus, so that it may be prevented from returning to its abnormal condition and at the same time can be forced farther backward, while the round ligaments are stretched and relaxed. The intra-vaginal fingers should now be placed in the posterior vaginal fornix and the cervix pressed downward and forward, by which the further replacement of the uterus is effected and the sacro-uterine ligaments are relaxed.

The relaxation of the round ligaments is facilitated by inhibition over their insertion in the mons Veneris and at the point at which they cross the spine of the pubis. The sacro-uterine ligaments are relaxed by inhibition of the sacrum.

After replacing the uterus, it is best for the pa-

tient to remain in the dorsal position for an hour or more, if possible.

BACKWARD DISPLACEMENTS.

Of these there are two—retroversion and retroflexion. They correspond to anteversion and anteflexion, the cervico-corporeal angle being changed in the first and unaltered in the second variety.

Of these displacements, different degrees are arbitrarily given by different writers; but as there is no clear distinction between the degrees and as the symptoms are not always proportionate to the amount of displacement, such a division is of no practical importance.

Causes.—1. Osteopathic lesions. These cause relaxation of uterine tissue and ligaments, and, by vaso-motor disturbance, cause congestion, which increases the weight of the organ, and, if continued, will lead to chronic endometritis.

In every case of persistent retro-displacement the round ligaments are relaxed, and usually the sacro-uterine also. This not only allows the fundus to slip backward, but also allows the cervix to move forward.

2. Inflammatory adhesions. These may occur high up posteriorly, and, by their contraction, draw the fundus backward; or, as is more frequently the case, they are situated low down and anteriorly

along the course of the vesico-uterine ligaments, or somewhat laterally in the direction of the obturator foramen. These anterior adhesions fix the cervix forward, which of itself has a strong tendency to force the fundus backward. Distention of the bladder or increased abdominal pressure from a muscular effort or some other cause is now only necessary to complete the displacement.

3. Increased weight, particularly of the fundus. This may result from pregnancy, subinvolution, chronic congestion, tumors, etc. In most of these conditions the ligaments participate in the uterine changes and become relaxed.

4. Posture. Following delivery it is common for a woman to be placed in the dorsal decubitus; and, in addition to this, an abdominal binder is applied. The increased uterine weight and the bandage both tend to cause a retro-displacement, and it needs only a distended bladder (and sometimes this is not necessary) to complete it.

5. Increased abdominal pressure. This may result from muscular efforts, tumors, ascites, etc., but most often from tight lacing.

Among less frequent causes may be mentioned falls, especially on the buttocks; constipation, which causes straining efforts; and a fecal mass in the rectum, forcing the cervix forward. In rare instances the fundus is prevented from occupying its usual

anterior position by the failure of the descent of an ovary.

Pathology.—The uterus is enlarged, slightly prolapsed, and the endometrium is in a state of chronic inflammation. Adhesions are common, as they are among the most frequent causes of the condition. The ovaries and tubes may be in a state of inflammation. All of the pelvic organs are congested.

Symptoms.—If not among the causative conditions, as a result of the displacement, congestion supervenes and is accompanied by leucorrhoea, menorrhagia, metrorrhagia, or, if continued for a sufficient length of time, by chronic endometritis, which plays a prominent part in causing sterility and dysmenorrhoea.

Constipation is frequent, and in many cases is caused by the pressure of the fundus upon the rectum. For the same reason defecation may be difficult, and there is a feeling of fullness in the rectum. A sense of weight and heaviness in the pelvis is common. Headaches, backache, a pain across the sacrum, pain and weakness in the limbs from pressure on the sacral nerves, and impaired locomotion may be present. Abortion is very likely to follow impregnation, and dyspareunia and dysuria are frequent.

Besides these, the usual reflexes of uterine displacements are present. The general nutrition suffers.

Diagnosis.—On passing the index finger into the vagina, the cervix may be found in its normal position, if the case is one of retroflexion; but more frequently it is somewhat anterior, and is directed downward, occasionally forward, and in extreme cases of retroversion may be directed upward, in which case it is hard to reach.

If the finger is now passed to the posterior surface of the cervix and upward, the fundus will be felt as a hard, round tumor continuous with it. In some cases this tumor will be found below the level of the cervix in Douglas' cul-de-sac. A tumor in this position may be caused by other conditions, and it is now necessary to demonstrate the absence of the fundus in its normal position. This may be done by the bimanual method, which has already been described. The diagnosis will be made more certain by a rectal examination, when the fundus will be felt through the anterior rectal wall. This is especially the case in fleshy patients.

A fibroid tumor, a prolapsed ovary, a hematocele, or an ectopic gestation may also produce a tumor in the same position in which the retro-displaced fundus is found. A careful bimanual examination, a thorough study of the history and symptoms of the case will in nearly every instance clear up the diagnosis. It may be necessary occasionally to use a sound to show the direction of the uterine canal.

Treatment.—Preliminary to the replacement of the uterus, all the causes of the displacement should be removed; osseous or muscular lesions must be reduced; all adhesions must be relaxed; congestion, chronic endometritis, or increased abdominal pressure must be relieved; and the round and sacro-uterine ligaments must be toned up by stimulation over the sacrum and over the insertion of the round ligament into the mons Veneris.

Replacement may be accomplished in several ways, no one of which will prove successful in every patient.

Success usually attends the following: Place the patient in the dorsal position. If the patient is married, pass the index and middle fingers—if unmarried, only the index finger—into the posterior vaginal vault and press the fundus as far upward and forward as possible. At the same time an attempt is made to get the fingers of the other hand behind the fundus from above by gentle, but firm, pressure upon the abdomen. In doing this, place the hand upon the abdomen, press the superficial tissues upward, so that they may be carried with the hand, and it will not be necessary to move the hand over the skin; then by downward and backward vibratory pressure penetrate the pelvis. As soon as this is accomplished the intra-vaginal fingers are placed anterior to the cervix, and it is pushed upward and

backward, while the fundus is pulled forward by the abdominal hand.

Particularly in virgins, as well as in some other cases, it will be found best to pass the index finger—and, when it can be borne, to pass both the index and middle fingers—into the rectum, and in this way press the fundus upward.

In other cases good results will be obtained by passing two fingers into the anterior vaginal vault and making downward and backward pressure at the cervico-corporeal junction, and thus straighten out the retroflexion angle, if the case be one of retroflexion. Next, the uterus should be pressed upward and somewhat in the direction of the sacro-iliac articulation, and the fundus reached and pulled forward by the other hand placed upon the abdomen, as in the method just described.

Another method sometimes successful is to place the patient in Sim's position, the physician standing behind her. Two fingers of the right hand, palmar surface backward, are passed into the posterior vaginal vault; the fundus is pushed up, and while it is held in this position by the middle finger, the index finger is passed to the anterior surface of the cervix, which is pressed backward and upward. This manipulation is now assisted by the middle finger also.

Much can sometimes be accomplished by placing the patient in the knee-chest position and forcing

the fundus forward and upward by the finger in either the vagina or the rectum. The same manipulation described as given in the Sim's position may be given in this one.

Whenever practicable after replacement the patient should assume the knee-chest position for several minutes, and then lie down in a position somewhat similar to Sim's, so that gravity will tend to prevent the uterus from returning to its malposition. Instruct the patient to assume the knee-chest position for several minutes before retiring at night.

PROLAPSE OF THE UTERUS.

This is ordinarily called "falling of the womb," and is a condition in which there is a descent of the uterus, varying in degree from the slightest descent to that state in which it is without the pelvis and hangs between the thighs of the patient. In the majority of cases the cervix approaches the vaginal orifice or protrudes slightly beyond the vulva.

Different degrees of descent are recognized, as first, second, and third. It is also called "incomplete" when the uterus remains in the vagina and "complete" or "procidentia" when it hangs without the vagina.

Under normal conditions the uterus is retained in position by several agencies, no one of which is alone of sufficient power to support the organ, al-

though the loss of one impairs the integrity of all. These are the utero-sacral and the utero-vesical ligaments, the connective tissue surrounding the uterus and binding it to other organs, the retentive power of the abdomen, and the pelvic floor. Of the tissues of the pelvic floor, the levator ani is of especial importance, owing to the position of the uterus relative to the opening in this muscle through which the vagina passes. The cervix overlaps the opening in the direction of the sacrum and the fundus in the direction of the symphysis pubis, so that the uterus is transversely placed over it; and to allow prolapse the cervix must either be brought forward or the opening enlarged until the tip of the cervix will slip into it. Complete prolapse is restrained by the round and broad ligaments.

Causes.—1. Osteopathic lesions. These interfere with the innervation of the ligaments and the pelvic floor and cause their relaxation, and, by vaso-motor disturbance, cause congestion and increased weight of the uterus. It will be seen that they have a two-fold influence in causing prolapse.

2. Childbirth. This is one of the most important causes of prolapse. Following it is subinvolution, which, as a rule, not only affects the uterus and leaves it larger and heavier, but also affects the ligaments and the pelvic floor, as well as impairs the retaining power of the abdomen by relaxing and

weakening the abdominal muscles. Perineal lacerations are also produced; and when these involve the levator ani, they are a frequent cause. Even when the laceration is not so excessive, it may allow the formation of a cystocele, which, in turn, draws the cervix forward and downward. Lacerations of the cervix, with their consequences, tend to cause prolapse. If childbirth occurs repeatedly, it acts proportionately as a cause of prolapse.

3. Increased abdominal pressure. This may be from tight clothing, continued coughing, efforts at stool, violent and continued muscular efforts, falls, abdominal tumors, or ascites. A sudden increase of abdominal pressure may produce acute prolapse in virgins.

4. Increased uterine weight, tumors, subinvolution, chronic endometritis, chronic congestion.

5. General debility or senile changes. In cases of constitutional weakness the uterine supports participate. After the menopause there is an atrophy of pelvic tissues and absorption of fat, by which the supports are weakened.

6. Anterior tension on the cervix. This may be caused by anterior adhesions, by which the cervix is drawn forward into the vaginal opening of the levator ani, and abdominal pressure then forces the uterus downward. A cystocele or a rectocele has the same effect.

Pathology.—The uterine ligaments are stretched, and the vaginal walls are congested, thickened, and inverted in proportion to the descent. In cases of complete prolapse they may be turned inside out. As a consequence of their congestion and increase in weight, they make additional tension upon the uterus and draw it farther downward. Congestion of all the pelvic viscera results from the distortion of and obstruction to the blood vessels.

The cervix, especially if it extend beyond the vulva, is eroded and ulcerated—if not from a primary laceration, then from the friction against the clothing. All of the exposed mucous membrane upon the cervix is lusterless, dry, and has rather the appearance of epidermis than that of mucous membrane. Endometritis, if not originally present, results from the congestion. Cystocele and rectocele are constant accompaniments.

Prolapsus resulting in an obstruction to the ureters is the only displacement which has been known to cause death.

Symptoms.—Decided prolapse sometimes exists without producing symptoms. Usually a large number or nearly all of the following are present: Bearing-down sensations; weight and heaviness in the pelvis; a feeling as if all the organs were going to drop out through the vagina; irritability of the bladder; frequent, and sometimes painful, micturi-

tion; inability to void urine until a cystocele is replaced through the vagina and the urethra straightened out; difficulty of defecation, if rectocele is pronounced, as feces have a tendency to collect in the pouch formed by the anterior rectal wall; pain in the back and loins; difficulty in walking; discomfort in standing on feet or making slight muscular exertions.

Leucorrhoea is usually present, but menstrual derangements are not very common.

In cases of acute prolapse there is a sensation of something having given way, shock, nausea or vomiting, rapid and feeble pulse, and clammy perspiration.

Diagnosis.—On vaginal examination, according to the degree of prolapse, the cervix will be found forward and low down, resting upon the pelvic floor or just within the vaginal orifice or protruding from the vagina. In cases of complete prolapse the entire uterus may be felt and seen protruding from the vulva. In examining for prolapse it is often necessary to examine the patient in the upright position, as in this position the maximum of prolapse will be evident.

As a condition very similar to prolapse is caused by hypertrophy and elongation of the cervix, to verify the diagnosis it is necessary to locate the body of the uterus by a bimanual examination. If

the body is found in its natural position, the case is one of hypertrophy of the cervix. Cervical hypertrophy and prolapse may appear together, but in cervical hypertrophy the unusual length of the cervix will be discovered. It will also be an impossibility to replace the apparently prolapsed organ, and an examination by a sound will demonstrate the increased depth of the uterus.

A polypus or an inverted uterus may occasion some difficulty in diagnosis, but in neither of these conditions is there an opening in the lower end of the tumor, while their small ends are upward, the reverse of a prolapsed uterus.

Treatment.—Several of the causes of this condition act in conjunction, and all that can possibly have any bearing upon it should be found and removed.

Replacement is usually not difficult, and is best performed in the knee-chest position. In cases of complete prolapse, empty the bladder and rectum and have the patient assume this position for from fifteen to twenty minutes before replacement is attempted. This allows the intestines to gravitate away from the pelvis, and thus congestion is somewhat relieved. The cervix is now pressed firmly, but gently, in the direction of the inferior strait of the pelvis. The pressure must be steady, not too hurried; and fifteen or twenty minutes should be

employed in reducing the displacement. Less time is necessary in minor degrees of displacement, but the procedure is the same. After replacement, a sweeping movement, beginning in the anterior wall of the vagina and made laterally on each side, should be given. This depletes the congested vaginal walls as well as the tissues between the layers of the broad ligament. The patient should be instructed to assume the knee-chest position several minutes before retiring every night.

In no pelvic troubles will deep-breathing exercises and expansion of the chest be more beneficial than in this. Place the patient upon a stool, stand behind her, and take one of her elbows in each hand. Place the knee high up between the shoulders and instruct the patient to take a deep inspiration. As she inhales, draw the elbows upward and backward, and hold them there until the patient exhales.

Abduction and adduction of the flexed knees against resistance is also a valuable movement. It depletes the pelvic blood vessels and, through the nerves controlling the thigh muscles, has a tonic effect upon the pelvic viscera.

The patient should also be instructed to use a restraining exercise. This is a most important adjunct to the treatment. Instruct her to assume the dorsal position, with hips elevated by placing a pillow under them; and then contract the perineal

muscles, as though restraining a movement of the bowels. This exercise may be taken just before retiring, beginning with from five to ten times and gradually increasing to from twenty to thirty times.

The movement given by some osteopaths for the purpose of stretching the broad ligaments is also useful. The patient occupies the dorsal position, the knees flexed and abdominal muscles relaxed; the physician stands at her side, facing her feet, and places both hands upon the abdomen low down, the finger tips directed toward the median line and the ulnar border of the hand parallel to Poupart's ligament; the fingers are now pressed as deeply as possible into the pelvis, and all the tissues are drawn upward and outward. This movement may be repeated several times at each treatment.

Stimulation over the sacrum has not only a tonic effect upon the pelvic tissues, but also upon the tissues of the pelvic floor.

CHAPTER X.

Neoplasms of the Uterus.

FIBROID TUMORS.

Histologically these tumors are composed of the same constituents as the uterus—unstriped muscular fibers and fibrous connective tissue, with some fusiform cells; they are, therefore, more correctly called "fibro-myomata." They constitute one of the most common uterine disorders, it being estimated that twenty per cent of all women over thirty-five years of age are affected by them.

In the majority of cases fibroids develop in the body of the uterus, occasionally in the cervix. The tumor may be single, in which case it is small, or it may be multiple and formed of a nest of small tumors separated from each other by connective tissue septa. The whole tumor is usually surrounded by a capsule of connective tissue, but in some cases the tumor is directly continuous with the uterine tissue. Fibroids vary in size from a

pea to a tumor weighing several pounds, one weighing one hundred and ninety-five pounds having been reported.

Fibroids are irregularly globular in form, and, when multiple, are distinctly nodular. In consistence the typical fibroid is hard, gristly, and cuts with difficulty, but is softer if the muscular tissue predominates or if it has undergone some of the many changes to which it is liable. They are non-malignant, but are sometimes associated with malignant disease and in rare instances themselves undergo malignant degeneration.

According to their location—just beneath the mucous membrane, in the uterine walls, or just beneath the peritoneum—they are classified into submucous, interstitial, and subserous fibroids. From the uterine contractions resulting from the irritation of an interstitial fibroid it has a tendency to become one of the other varieties. Fibroids may be either pedunculated or sessile—the former, when they are attached by a long neck, or pedicle; the latter, when their attachment is by a broad base. If a submucous fibroid is pedunculated, a polypus is formed.

While adhesions are not so common as in ovarian tumors, nevertheless when they do form they are strong and very vascular. A pedunculated, subserous tumor sometimes becomes entirely separated from the uterus and obtains its nourishment from

adjacent organs to which it has become attached by adhesions.

Fibroid tumors participate in the changes occurring in the uterus. During a menstrual period they become more vascular, larger, and more sensitive. They grow during pregnancy, and sometimes disappear as a result of the involution following this condition. After the cessation of ovarian and uterine activity following the menopause, they frequently cease to grow and may atrophy or undergo a benign degeneration.

At any time during their existence they are liable to degenerative processes. From constriction or torsion of its pedicle a fibroid may become edematous, or inflammatory changes or sloughing may occur. Cystic degeneration, with the formation of small cysts in the walls of the tumor, which may coalesce and form one large cyst, is sometimes seen. The cysts may be filled with a clear, serous fluid or bloody or purulent material. Inflammatory changes, with pus infection or gangrene—or calcareous, fatty, or myxomatous changes—are seen.

Endometritis is common. Salpingitis, with a bloody or purulent matter in the tubes, is frequent. The ovaries are congested and enlarged. If the tumor is very large, hypertrophy of the heart may result from the obstruction to the circulation.

Causes.—1. Osteopathic lesions. Clearly the di-

rect cause of the disease is perverted nutrition, and this is induced by irritation to vaso-motor nerves that results from lesions.

2. Nulliparity. Fibroids are most frequent in those women who have never borne children. The continuous congestion of menstruation is never stopped by pregnancy, and, in consequence, the hypernutrition resulting from it causes an abnormal and irregular growth of uterine tissue.

3. Age. Fibroids occur during the time of sexual activity, usually from thirty to forty-five years of age. Cases have been reported soon after puberty, but in such the diagnosis may have been wrong.

Symptoms.—These vary somewhat with the variety of the tumor, though certain symptoms are common to all forms.

Pain.—This is a rather complex symptom, and is produced in various ways. A small interstitial or submucous tumor will cause uterine contractions and produce more pain than a much larger subserous one. In these cases the pain is usually colicky and paroxysmal. A constant pain is caused by distention of the uterine walls, associated peritonitis, distention of the abdomen, weight of the tumor, or pressure upon the sacral nerves causing a neuralgic pain in the pelvis and down the legs. The severity of the pain is no indication of the size

of the tumor, as a small tumor within the uterus or its walls causes more pain than a larger subserous tumor, and a small tumor producing pressure in the pelvis causes more pain than a larger tumor which rises into the abdomen. Pain is more severe during hemorrhages or menstruation.

Hemorrhage.—Menorrhagia may be the first indication of disease, especially in the submucous or interstitial variety. The subserous form may attain considerable size without causing menstrual disturbance. Metrorrhagia soon follows. The bleeding is very irregular. The patient may be free from it for a long time, when it will return in an alarming amount. Again, the hemorrhage may be slight, but continuous.

Leucorrhoea is common and alternates with the hemorrhages. A profuse watery discharge—hydrorrhoea—is frequently present.

Pressure symptoms follow enlargement of the tumor. From pressure upon the bladder or urethra, frequent, difficult, or painful micturition may result. Hydronephrosis, pyelitis, or nephritis may be caused by obstruction of the ureters; difficult defecation, constipation, or fecal impaction may be produced by pressure on the rectum; edema of the legs, or ascites, may result from obstruction to the return circulation. The uterus is often greatly displaced. It may be prolapsed by the weight of the tumor;

and if a polypus is attached near the fundus, inversion may result.

General Symptoms.—As a result of the continued hemorrhages the patient becomes anemic, weak, easily exhausted; and if the tumor is large and makes pressure upon the gastro-intestinal tract, digestive disturbances result. A slight rise of fever is occasionally seen, which is often, but not always, the result of some suppurative or degenerative change in the tumor.

Diagnosis.—This is made by differentiation.

In pregnancy a physiological amenorrhoea is the rule, while menstruation is increased or irregular in fibroids. The uterus is symmetrically enlarged, and other signs of pregnancy are present. When a fibroid tumor exists with pregnancy, a diagnosis is sometimes very difficult. Then the enlargement is greater than the stage of the pregnancy will account for. Hearing the fetal heart beat makes the diagnosis of pregnancy conclusive.

Pelvic hematocele is of sudden occurrence and is accompanied by acute symptoms, and the tumor is sensitive and at first semifluid.

Flexions can be diagnosed by bimanual examination and the absence of the fundus from its normal position.

Solid ovarian tumors can be moved without affecting the position of the uterus, and the depth of

the uterine cavity is not increased. In some such cases a diagnosis is almost or altogether impossible.

If the fibroid is subserous or pedunculated and between the layers of the broad ligament, a diagnosis is very difficult. They are usually harder than other tumors in this location, not so tender as tumors from disease of the tubes, and the acute pain and other symptoms of extra-uterine gestation are absent.

In cancerous troubles there are early ulceration, offensive discharges, greater pain, the history of the tumor being of comparatively recent occurrence, and the development of the cancerous cachexia.

Prognosis.—While fibroid tumors are perfectly benign tumors, the possibility of their causing death must not be forgotten. Death has occurred from hemorrhage; from asthenia; from some change in the tumor—as suppuration, gangrene, or malignant degeneration; or from pressure upon the ureters or intestines. It is true that many cases of fibroid tumors give rise to no symptoms whatever. Spontaneous cure has resulted from the involution following pregnancy or the expulsion of a polypus. In many cases they cease to develop and sometimes atrophy after the menopause, but in some instances the climacteric is indefinitely delayed by them.

Osteopathic treatment gives relief in nearly all cases. Some cease to enlarge; others become

smaller; and but very few, if any, entirely disappear.

Treatment.—All lesions are to be removed. Hemorrhage and leucorrhoea are treated by the usual methods. Pressure symptoms are relieved by raising and loosening up the tumor as much as possible and correcting any uterine displacement that may be caused by it. Direct treatment to the tumor is of value in relieving congestion and decreasing its size by absorption.

Inhibition over the lumbar and sacral regions is valuable in relieving suffering and equalizing the circulation.

If the patient does not improve after persistent treatment and the symptoms become alarming, have her consult a surgeon. It must be remembered that, as a rule, the menopause has a favorable effect upon the disease.

MALIGNANT TUMORS OF THE UTERUS.

These are called "malignant" because of their rapid growth; their tendency to return after removal, to involve surrounding tissues, to produce severe constitutional symptoms; and their comparatively short course, which ends in death.

They are, in their order of frequency, carcinoma and sarcoma.

Carcinoma, or cancer, is a malignant growth composed of nests of epithelial cells and connective tissue arranged in variable proportions.

Cancer of the uterus is more common than cancer of any other organ, about one-third of all fatal cases occurring here. It is a disease of adult life, nearly all cases occurring between the ages of thirty and fifty years, being especially prevalent in the few years just before and after the menopause. The disease has occurred, but is extremely rare, before the age of twenty years. An hereditary predisposition is not uncommon, and cancer sometimes occurs in those persons whose constitutional resistance is weakened by a tubercular or syphilitic ancestry. It is less frequent among the better classes than among the poor, whose lives are made up of frequent childbearing, worry, hard labor, and poverty, which induces poor nutrition. Injuries or disease of the cervix seems to be especially causative, and for this reason the disease is more frequent in multipara, although cancer of the body of the uterus sometimes occurs in nullipara. The disease is said to be less common among negroes than among whites.

Various osteopathic lesions are commonly found; and as this is a disease of perverted nutrition, they are no doubt important, if not the chief, etiological factors.

Cancer of the uterus in the majority of cases primarily affects the cervix and usually occurs in one of three forms:

1. Nodular. In this form small nodules develop beneath the mucous membrane and infiltrate the muscular tissue of the cervix. These nodules soon break down and form ulcers. The diseased process may be extensive and limited to the cervix without appearing at the os or involving the body. Occasionally it may extend upward and affect the body.

2. Papillary. In this form there is a cauliflower-like growth from the cervix, which may fill the whole of the upper part of the vagina. The tissue is very friable and bleeds easily.

3. Ulcerative. In this form there is a superficial infiltration of the mucous membrane, which soon breaks down and forms a superficial ulcer.

Some cases will be met with which cannot be positively placed in either of these classes. The tendency of all is toward breaking down of tissue, ulceration, and involvement of surrounding structures; and when this occurs, it is impossible to say what was the original form.

Symptoms.—Unfortunately, many cases of cancer are well developed before the severity of the symptoms induces the patient to consult a physician.

Hemorrhage is one of the first symptoms, but it may not be sufficient to excite suspicion of disease until ulceration has occurred. There may at first be menorrhagia and, later on, metrorrhagia, or, what is more suggestive of cancer, a return of the flow

after the menopause. In other cases the first indication of hemorrhage may follow coition or some unusual exertion, or there may be a blood-streaked leucorrhoea.

Another constant symptom is a discharge, which at first may be serous, clear, and odorless. After ulceration occurs, it becomes more profuse, slightly colored, and has a peculiar, sickening, and very offensive odor. It is very irritating, and causes excoriation and intense pruritus of the parts over which it flows.

Pain.—In the beginning this is slight or absent. As the tumor grows, as a result of the infiltration of the uterine tissue, the pelvic connective tissue, or the peritoneum, and as a result of pressure, the pain becomes continuous and severe. Ordinarily it is constant and of a burning or shooting character throughout the pelvis. Pain in the back and neuralgic pains in the legs are frequent. If the body is involved, it may be cramplike in character from the efforts of the uterus to expel masses of the broken-down tissue. In rare instances pain is but slight, or even absent, throughout the disease.

From extension of the disease the anterior vaginal wall and the bladder are finally affected, and cystitis, with frequent and painful urination, will be caused. The ureters may be partially obstructed, leading to hydronephrosis; and if the obstruction be

complete, anuria, uraemia, and death will result. Fistulae may result from ulceration between the vagina and rectum or bladder.

The general condition may remain good for some time; but it invariably succumbs to hemorrhage, digestive disturbances, and toxaemia—the cancerous cachexia. There is progressive loss of flesh and strength, and the skin assumes a dirty-yellow and apparently bloodless tinge.

Anorexia, a disagreeable taste in the mouth, eructations, thirst, nausea, vomiting, and constipation are common. Diarrhoea may be present in the late stages of the disease.

Edema of the legs, or ascites, is sometimes caused by pressure on the return circulation. The deterioration of the blood and general weakness are also factors in this. The pelvic and inguinal lymphatic glands are enlarged. Metastatic growths are rare.

Diagnosis.—This is most difficult at a time when a correct diagnosis is most to be desired—in the beginning.

On a vaginal examination the cervix will be found to be enlarged and, except in the papillary form, hard and nodular, frequently resembling the condition found in long-standing lacerations, with endometritis. In the papillary form the cauliflower excrescence will be found occupying the upper portion of the vagina. In this condition the tissue is

softer, but in all cases it is very friable and bleeds upon slight violence or manipulation.

After ulceration has occurred, the diagnosis is easier. Here the ulcer (with sharply-defined and hard edges), the friable tissue, and the tendency to bleed from trivial causes; and, later on, the fixity of the uterus, the infiltration and hardening of the vaginal vault, the involvement of the inguinal or pelvic glands, the history, the age of the patient, and other local and general symptoms—these usually make the diagnosis easy.

In doubtful cases a specimen of the growth should be submitted to a competent pathologist for a microscopical diagnosis.

The diseases causing most difficulty in diagnosis are lacerations of the cervix, with endometritis; fibroids, or polypi, especially if sloughing.

In the former disease there is a lack of so great friability of tissue and tendency to hemorrhage; the line of demarcation between the diseased and healthy tissue is not so prominent; the hypertrophied follicles (ovula of Naboth) are usually present; and on a visual examination the erosion is seen not to be a true ulceration. Besides, this cancer occurs near the menopause; is not a disease of long duration; and has with it the fetid discharge, greater liability to hemorrhage, and constitutional symptoms.

In cases of fibroids and polypi the enlargement of the uterus is at the fundus, or the polypus can usually be felt through the cervix. Such troubles are less frequent after the menopause; the uterus is movable; the tumor is of long standing; and the symptoms of sloughing, when present, are rather acute in their onset.

Prognosis.—This is bad, or (if the disease is not discovered until it is well advanced) hopeless. Death usually results in from six to twenty-four months, either from exhaustion and uraemia or peritonitis. Exceptionally the disease may last for from five to seven years, and a very few cases of spontaneous cure by the cancerous tissue sloughing out are reported.

Treatment.—This should be surgical in those cases in which the whole of the diseased tissue can be removed. Cancer is a local disease, and, if entirely extirpated, does not return; but if even a few, a microscopic mass, of the cancer cells survive the operation, the trouble will return.

Osteopathic treatment has cured some apparent cancers. Such cures may have been of true cancers or cases in which the diagnosis was at fault. Theoretically they should be cured by such treatment, but often they are of such rapid growth and malignancy that total excision is best if it can be accomplished.

In the cases not admitting of an operation, reduction of lesions, the relief of pain, and the control of hemorrhage are achieved by the usual methods. The patient should also have general treatment, nutritious food, and good hygienic surroundings, so that the general health may be built up in every possible manner.

Deodorant douches should be given for discharges.

CANCER OF THE BODY OF THE UTERUS.

This occurs in only from two to three per cent of cancers involving this organ. It has symptoms similar to those of cervical cancer. It is not so easily diagnosed by vaginal examination. The body of the uterus is enlarged, the cavity is deepened, probing is followed by hemorrhage, and there may be passed masses of the cancerous tissue. All that applies to treatment and prognosis of cancer of the cervix is applicable here, except that it is more rapidly fatal.

SARCOMA.

This is a tumor formed of an irregular growth of connective tissue and embryonal cells. It is usually located in the body of the uterus, and affects the cervix but rarely. It is most frequent between the ages of forty and fifty years, but may occur

at any age, and has been observed as a congenital growth. It is sometimes called the "cancer of youth." Many of the women affected by it are nulliparous. Its cause is no better known than is that of carcinoma.

Symptoms.—These begin somewhat similar to those of fibroid tumors, with hemorrhage, watery leucorrhoea, and pain. The uterus is enlarged, and perhaps nodular. The cervix may be dilated, and through it the growth can be felt, or it may be forced down through the os by uterine contractions. The pain is often expulsive in character, and also results from pressure and involvement of the surrounding tissues. Pieces of diseased tissue may be expelled from the os. The growth of the tumor is rapid.

A bloody, offensive discharge and cachectic symptoms soon appear.

The diagnosis from fibroids is sometimes difficult. The tumor is of more rapid growth and occurs at the menopause, a time when fibroids cease to grow. The tumor is not so firm as a fibroid, and the pain is more violent. Pieces of tissue may be passed or the soft and ulcerating tissue may be felt through the os. The discharge is sero-sanguineous and fetid. The loss of flesh and strength and appearance of cachexia exclude the possibility of a fibroid.

From carcinoma of the body the diagnosis may be impossible.

From chronic endometritis the diagnosis is made by age, endometritis occurring at any age, but not after the menopause; the uterus is not markedly enlarged; tenderness is slight or absent; there is no cachexia; a sero-sanguineous discharge is rare; and the os is usually closed.

Prognosis and Treatment.—See "Carcinoma of the Uterus."

CHAPTER XI.

Diseases of the Ovaries.

DEFECTIVE DEVELOPMENT.

Congenital absence of one or both ovaries occurs, and is usually associated with deficient development of the remaining sexual organs and always with derangement of their function.

When both ovaries are absent, the usual changes of puberty do not occur; the girl does not develop into the physical perfection of womanhood; and often mental inertia and depression, and sometimes a condition akin to idiocy, prevails.

Rudimentary development is more common, and may affect one ovary, but usually both ovaries. This is also associated with defective development of the other genital organs and with disturbed mental and physical maturity. Such a condition is sometimes seen in female epileptics.

Supernumerary ovaries are occasionally found.

When the ovaries are congenitally absent, no treatment is able to develop the sexual functions; if they are rudimentary, but little can usually be accomplished.

CONGESTION OF THE OVARIES.

Congestion is physiological during menstruation and coition; but if excessive or continued, it becomes pathological. Continued passive ovarian congestion is nearly always, if not always, a part of a general pelvic congestion, because of the free anastomosis between the blood vessels of all the pelvic viscera.

Causes.—1. Osteopathic lesions, particularly those affecting the ninth to the twelfth dorsal vertebrae and the corresponding ribs.

2. Conditions causing pelvic congestion—uterine displacements or disease, pelvic inflammation or adhesions, diseases of the heart or lungs, and deteriorated blood conditions, as in fevers, mineral poisoning, septicaemia, etc.

3. Close confinement and lack of proper exercise at the commencement of menstruation. This is seen in ambitious schoolgirls and in those of indolent and luxurious habits.

4. Masturbation, excessive venery, and ungratified sexual desire.

5. Displacement of the ovary.

Symptoms.—There is constant pain or tenderness over one or both ovaries, more often the left ovary. The pain is more severe preceding the menstrual period, radiates down the thighs or to the back, and is relieved by the flow, which is usually profuse. A sympathetic pain in the breast is frequent. There is no fever present.

As a result of the intense congestion occurring at menstruation, hemorrhage may occur into a Graaffian follicle and the tissue of the ovary. This is called "follicular apoplexy" or "ovarian apoplexy," and may cause considerable enlargement of the ovary and severe pain, with nausea and vomiting. The extravasated blood may be absorbed, or the ovarian tissue may rupture and copious bleeding take place into the peritoneal cavity, giving rise to the formation of a hematocele in Douglas' pouch and symptoms of shock and acute anemia.

Treatment.—If the congestion be dependent upon osteopathic lesions, these should be removed, with all causes producing pelvic congestion. Sexual excitement of any kind, especially coition, should be prohibited until congestion is relieved. The patient should go to bed a few days before the expected period and remain there until the flow ceases. General relaxation and inhibition of the lower dorsal and lumbar region will relieve pain and congestion. Build up the general health, and have the patient to

take ample outdoor exercise, form regular habits in regard to eating and sleeping, and avoid all forms of excitement.

DISPLACEMENTS OF THE OVARY.

One or both ovaries are occasionally found in abnormal positions outside the pelvic cavity. From failure to descend, one may remain in the lumbar region, or it may be contained in an inguinal, femoral, ventral, or more unusual form of hernia. The ovaries may become diseased in their abnormal situations. However, these conditions are rare.

PROLAPSE OF THE OVARY.

This is not uncommon, and may affect one or both ovaries, most frequently the left ovary, because of its anatomical predisposition to congestion and increase of weight.

The affected ovary drops downward, backward, and toward the median line, and is, as a rule, found in Douglas' pouch, sometimes as low as the level of the external os.

Causes.—1. Osteopathic lesions, by causing relaxation of pelvic tissues, passive congestion, and increase in weight of the ovary.

2. Uterine displacements. These not only cause congestion, but retro-displacements also draw the ovary downward and backward.

3. Increase of weight, as from tumors, congestion, inflammation.

4. Traction. This may be from adhesions or enlarged tubes adherent to the ovary.

5. Subinvolution. This not only destroys normal tonicity, but leaves the tissues congested and heavier than normal.

A fall or a violent muscular effort may be necessary as a determining cause in the presence of the foregoing as predisposing causes.

Symptoms.—As a result of the abnormal position and consequent obstruction to circulation, congestion and inflammation, if not among the causes, are produced and cause their usual symptoms.

Pain is constant, and is felt in the sides of the pelvis, the lower part of the back, the sacrum, or the rectum. It often radiates down the thighs to the knees. It is more severe just preceding the menstrual flow, and is increased by the passage of hard fecal masses, especially by coition and by standing and walking. There is a more aggravated sensation of weight and heaviness in the pelvis than accompanies uterine displacements.

Gastric and nervous symptoms, malaise, and mental depression are common.

Dysmenorrhoea and menorrhagia are frequently present.

On pressure over the ovary or on bimanual pal-

pation, a weakening, nauseating pain is caused.

Diagnosis.—This is made by the presence of an enlargement in Douglas' pouch, its shape, relation to the uterus, absence of the ovary from its normal position when it can be detected, and the peculiar sensation of faintness and nausea when the tumor is pressed upon.

Prognosis.—This depends upon the complicating conditions, as congestion, inflammation, degenerative changes, and adhesions. If these are present, the prognosis depends upon whether or not they can be removed, as replacement will not be permanent unless they are cured.

Treatment.—This should be directed to the removal of cause and complications. Lesions are to be reduced, tissues toned up, and all adhesions relaxed by treatment to proper centers and appropriate local treatment. With each local treatment the ovary should be loosened up; and if it is not too sensitive, attempts at replacement should be made. This is done by the bimanual method in the dorsal position, and in some cases better results may be gained by using the fingers of one hand, with the patient in the knee-chest or left-lateral position. Replacement may have to be repeated a number of times before it becomes permanent.

Have the patient to occupy the knee-chest position several minutes before retiring, and give deep-breathing and chest-expanding exercises for effect

on pelvic circulation. The ovary will now often spontaneously return to its normal position.

OVARITIS, OR OÖPHORITIS.

This is an inflammation of the ovaries, and occurs in an acute, but more frequently in a chronic, form.

Acute ovaritis may occur in one or both ovaries, and may originate in the peritoneal covering of the ovary, peri-ovaritis; or in the stroma of the organ, ovaritis proper.

Causes.—1. Osteopathic lesions. These are great predisposing causes by producing defective innervation and derangement of normal vascular conditions.

2. Inflammation of the mucous membrane of the uterus and tubes. This may be simple, septic, or specific, and, by extension, involve the ovaries.

3. Menstrual suppression, as from cold, wet, etc.

4. Septic infection through the lymphatics from parturition, minor gynecological operations, instrumental examinations, etc.

5. Constitutional diseases—eruptive fevers, cholera, mumps, septicaemia, etc.

Pathology.—The affected organ is enlarged and tender. In ovaritis its tissues are infiltrated by round cells and serum. The inflammation may progress to suppuration, especially in cases due to puerperal or gonorrhoeal infection. The inflammation may be less acute and the organ remain en-

larged from the formation of connective tissue within its stroma, which may subsequently contract and leave the ovary in a more or less atrophied condition. In peri-ovaritis there is an inflammation of the capsule of the ovary, which extends more or less to the surrounding peritoneum. The organ is enlarged, tender, and surrounded by adhesions.

Symptoms.—These are frequently overlooked or ascribed to the accompanying salpingitis or peritonitis. As a rule, there is severe pain in the iliac fossa on the affected side. The pain may radiate to the rectum, the sacrum, the bladder, and down the thigh to the knee. There is a rise of fever, sometimes there is a chill, and frequently there are nausea and vomiting. Should an abscess develop, there will be irregular chills, fever, and sweats; in rare instances fluctuation may be elicited. Pressure over the ovary causes severe pain, and on bimanual pressure the pain is intense. The ovary is found enlarged to the size of a hen's egg or larger.

Diagnosis.—This is sometimes difficult. The location, the enlargement of the ovary, and the symptoms, especially if the ovary is spherical in outline, tender, and the uterus is freely movable, will make the diagnosis fairly certain. Salpingitis, hydrosalpinx, and pyo-salpinx form sausage-shaped tumors.

Prognosis is favorable. If an abscess does not

form, the inflammation subsides in less than a week; if abscess formation should occur, the greater part of the ovary may be destroyed and sterility result, or life may be threatened by infection of the peritoneum. The possibility of prolapse from increased weight, the formation of adhesions, and recurrence of the attack must be considered.

Treatment.—The patient must be confined to bed, the bowels freely moved by warm enemeta, and an ice bag applied to the iliac fossa over the affected ovary. Occasionally hot applications are more grateful to the patient, and are then to be preferred.

The lower dorsal and upper lumbar regions should be gently relaxed, followed by inhibition to relieve pain and congestion. Should an abscess form and give rise to septic symptoms, the pus must be evacuated. If this is not done, rupture and peritonitis sometimes occur. Rupture of the abscess usually takes place through the intestines, vagina, bladder, or rectum.

CHRONIC OVARITIS.

This is a chronic inflammation of the ovaries found more frequently associated with chronic inflammation of the pelvic peritoneum and connective tissues than as a disease of the ovaries alone.

Both organs may be involved; but when the disease is unilateral, the left ovary is more frequently

affected. This is because of its proneness to congestion, the left ovarian vein having no valve, opening into the renal at right angles, and is subject to pressure from fecal matter in the lower bowel.

The disease is most common in married women and during the age of sexual activity.

Causes.—1. Osteopathic lesions, especially from the ninth to the twelfth dorsal vertebrae and to the corresponding ribs. These affect the innervation of the ovaries and cause congestion, which may be either the active or the predisposing cause of chronic ovaritis.

2. Pelvic inflammation, especially gonorrhoeal or puerperal. Endometritis, salpingitis, cellulitis, or peritonitis may cause ovaritis by extension—the two former, by extension through the tubes; the latter, by contiguity of tissue.

3. Uterine displacements, by causing congestion, and especially retroversion, which also displaces the ovaries.

4. Prolapse of the ovary, by irritation and congestion.

5. Acute ovaritis, particularly repeated attacks.

6. Intemperate coitus, masturbation, or unsatisfied sexual desire.

7. Agencies producing continued pelvic congestion—heavy lifting, sewing on machine, alcoholism, and heart, lung, or kidney disease.

Pathology.—In the early stages of the disease the ovaries are enlarged to two or three times their natural size, and are greatly congested. This enlargement may continue throughout the course of the disease, or the ovary may become smaller than normal, imbedded in adhesions, which alone, or with the contraction of new inflammatory tissue in the stroma of the organ, has caused the atrophy. Cystic degeneration is not uncommon. The cysts may be small and multiple, or one large cyst may form and, by pressure, cause atrophy of the ovarian tissue, a true ovarian cyst being formed. The cysts originate from the corpora lutea and from Graaffian follicles, which are prevented from rupture by being deep seated, covered with inflammatory material, or because of insufficient menstrual congestion to cause their normal rupture. Waxy degeneration of the ovary sometimes occurs.

Symptoms.—These are frequently vague and masked by attendant conditions. Pain is constant; is most severe in the groin, more frequent on the left side; and radiates down the thigh to the knee, to the sacrum, to the rectum, or to the bladder. It is increased by any jolt or jar, often by micturition or defecation, by coition if the ovary is prolapsed, and sometimes makes standing or walking for even a very short time difficult and painful. The pain

is always more severe preceding menstruation, sometimes several days before, and is relieved if the flow is profuse, but continues when the flow is scanty.

Sympathetic pains are often felt in the breasts. The ovaries are tender on abdominal or bimanual pressure.

Irregular or profuse menstruation is common; but if there is great destruction of ovarian tissue, amenorrhoea and sterility will result.

Leucorrhoea is present, and is a symptom of general pelvic congestion.

The nervous system is sometimes profoundly affected. Irritability, attacks of mental depression, hysterical tendencies, true hysteria, hystero-epilepsy, or true epilepsy may develop.

Digestive disorders and the effects of malnutrition are constant in cases of long standing.

Diagnosis.—This is made from a history of pelvic inflammation, tenderness and enlargement of the ovary (which increases before menstruation), premenstrual pain, the presence of adhesion about the ovary, the general symptoms, and the location of the osteopathic lesions.

Prognosis.—Good, so far as life is concerned. Nearly all cases are benefited; many are cured. Several months' treatment may be necessary.

Treatment.—This, of course, begins with the loca-

tion and removal of the causes of the trouble and the relief of pelvic congestion.

Pain is relieved by relaxation and inhibition of the ovarian centers. The general nutrition should be improved in every possible manner, general treatment, restoration of digestive function, easily digestible and nutritious diet. The patient should rest in bed during the menstrual period. Sexual intercourse should be prohibited.

Local treatments should be given cautiously and very gently at first. There should be a gentle, relaxing bimanual treatment, which, with spinal inhibition, will relieve congestion, pain, and soreness. The pelvic tissues should be raised by treatment through the abdominal wall by the manipulation given for stretching the broad ligament.

As soon as the pain and tenderness are sufficiently relieved, treatment should be given to the ovary to release it from surrounding adhesions and restore it to its proper position.

CHAPTER XII.

Neoplasms of the Ovary.

Ovarian tumors are either cystic or solid. Of the cystic growths there are simple, proliferating, and dermoid cysts. The solid growths are more rare, and include fibroid tumors, sarcomata, and carcinomata.

Cysts may develop from any part of the ovarian structure.

Cause.—Little is known of the cause of ovarian cysts. They appear at all ages, but are more common between the ages of twenty and fifty years, the period of sexual activity. Dermoid cysts are the most frequent variety appearing before puberty. They are all more common in nullipara, probably because there is no relief from continued menstrual congestion by pregnancy and lactation. Unceasing menstruation causes a hypernutrition of the pelvic viscera that sometimes manifests itself as a morbid growth. An hereditary predisposition is occasion-

ally observed. Chronic ovaritis and deficient menstrual congestion by not allowing the rupture of the Graaffian follicles are thought to be causative.

Osteopathic lesions, especially from the ninth to the twelfth dorsal vertebrae and to the corresponding ribs, are constant, and are doubtless the chief causes of these tumors, because of the intimate sympathetic relationship between these structures and the ovaries.

Simple Cysts.—These result from the dilatation of unruptured Graaffian follicles, and rarely grow larger than an orange, or, at the utmost, as large as an adult head. They are bilateral, as a rule, and are filled with a clear, serous, bland, alkaline fluid.

Another form of the simple cyst is that developing from a corpus luteum. These are of slow growth, rarely attain a size larger than an orange, are composed of a multitude of small cysts, pedunculated, bilateral, and have an appearance suggestive of a bunch of grapes.

Tubo-ovarian are simple cysts that result from the adhesion of a hydro-salpinx to a cystic ovary. The tissue between the two becomes absorbed, and the two cavities unite into one. The os uterinum usually remains open, and the cyst may from time to time empty itself and its walls collapse. Such cysts do not reach a large size, and are unilateral.

Proliferating Cysts.—These are so called because

of their property of increasing in size by the formation of new cysts or growths within the original cyst. They are of two varieties—glandular and papillary.

Glandular proliferating cysts are the most frequent of ovarian growths, most rapid in development, and in size range from a walnut to a tumor weighing as much as one hundred and forty-nine pounds.

Owing to their method of formation they are always at first multilocular, but, by the absorption of partitions, may become unilocular. The unilocular tumors are usually smooth; the multilocular, nodulated. The ovarian tissue is destroyed when they reach the size of the fist. They are nearly always pedunculated and bilateral.

They are filled with fluid, which may be clear or discolored, from the slightest tinge of yellow to black, and in consistence may vary from that of water to semisolidity. The fluid contains epithelial cells, red blood corpuscles, white blood corpuscles intact and in various stages of disintegration, besides cholesterin and indican.

Papillary proliferating cysts are not so common. They neither grow as rapidly nor attain so great size as the glandular cysts. From their inner surface warty growths, or papillomas, grow. These may not only fill the cyst, but rupture its walls and

infect the surrounding structures. Ascites is often associated with this form.

Dermoid Cysts.—These are thought to be caused by the invagination of epiblastic cells during the fetal development of the ovary. This is probable, as it is from epiblastic cells that normal tissues, abnormal counterparts of which are found in dermoid cysts, are formed. The inside of the sac of a dermoid cyst resembles skin both in appearance and histological structure. Papillae, sudoriferous and sebaceous glands, hairs, teeth, cartilage, bone, and unstriped muscular tissue are frequently found in these tumors; and even mucous membrane, mammae, apparent brain tissue, a metacarpal bone and articulations, a trachea, a partially formed heart, and an eye have been found. Besides these, there is a thick fluid containing cholesterin and abundant fat, which may be in globules or in solid masses.

Dermoids are rarely larger than an adult head, though two or three may develop from the same ovary. They are usually, though not invariably, unilateral. They have been found at all ages between birth and the age of ninety years. They are the most frequent form of ovarian tumor occurring before puberty, and are sometimes associated with defective development of the generative organs.

Ovarian cysts of all varieties are usually pedunculated, the pedicle being formed of the ovarian liga-

ment, the Fallopian tube, and part of the broad ligament, with the accompanying blood vessels, nerves, etc. Torsion of the pedicle sometimes occurs with the production of disastrous consequences. Occasionally the tumors develop between the layers of the broad ligament and grow downward, in which case there is no pedicle.

Adhesions form more frequently than in fibroid tumors of the uterus. They occur when there is a loss of epithelium covering the tumor. In order of frequency they occur between the tumor and the abdominal wall, omentum, intestines, bladder, uterus, etc.

Ascites may accompany any variety of ovarian cyst, but is most often seen with the proliferating papillary.

When each ovary develops a cyst, the two cysts may become adherent, the partition between them may be absorbed, and a single cyst (with two pedicles) may be formed.

All cysts are liable to certain complications or changes within their structure, which give rise to symptoms peculiarly their own. Such changes may be hemorrhage, inflammation and suppuration, rupture, calcification, or cancerous degeneration.

Symptoms.—The tumor may develop insidiously and be discovered by accident, or the attention may be called to it by the enlargement of the abdomen.

This is especially the case when the cyst is pedunculated and rises into the abdomen. Should it be confined to the pelvis, it will cause symptoms earlier in its course.

As a rule, more or less pain is experienced, or a sense of weight and heaviness or discomfort in walking or during the act of sitting down or rising. A premenstrual or intermenstrual pain is not uncommon. Menstrual disorders are not usual at first, but later on menorrhagia—or, after uterine tissue is destroyed, amenorrhoea—may be present. In some cases there is a reappearance of the flow after the menopause. If both ovaries are destroyed, sterility results, and is often produced when only one ovary is cystic; while, on the other hand, pregnancy has occurred when both ovaries were the seat of large tumors; but under such conditions abortion is probable.

Pressure symptoms occur when the tumor reaches the size of the double fist, if it is retained in the pelvis by adhesions or a short pedicle. If the tumor rises into the abdominal cavity, pressure symptoms make their appearance much later.

Pressure on the bladder will cause frequent, difficult, or painful urination, or even retention of urine; on the rectum it causes difficult—and, when the tumor is sensitive, painful—defecation; on the ureters it leads to hydronephrosis, partial or com-

plete suppression, and uraemia. Compression of the abdominal veins causes edema of the legs, external genitals or hemorrhoids, and enlargement of the superficial abdominal veins. Nausea, vomiting, and anorexia will be caused by pressure upon the stomach, and jaundice may result from pressure upon the bile ducts.

Neuralgic pains in the legs result from pressure upon the lumbo-sacral nerves.

Abdominal enlargement usually begins in one iliac fossa, but finally extends over the entire abdomen. The enlargement reaches the greatest degree and is most rapid in the glandular proliferating cyst. As the tumor grows larger and heavier, the patient leans backward in walking so as to preserve her center of gravity. The tumor may become so large that walking is impossible, and she cannot lie in the dorsal position, but is compelled to lie on her side and to be turned by her attendants.

Enlargement of the breasts, and even the secretion of milk, is sometimes seen.

Various displacements of the uterus result, according to the direction in which it is pressed or dragged by the cyst.

The general health soon fails. The patient becomes emaciated and weak; her features become pinched and furrowed, giving her a characteristic facial expression. If not relieved, death ultimately

results. It may be from marasmus and asthenia, impeded heart and lung action, intercurrent disease of the respiratory organs, nephritis, hydronephrosis, or complications occurring in reference to the cyst itself, as hemorrhage, inflammation and suppuration, rupture, torsion of the pedicle, intestinal obstruction, or cancerous degeneration.

Hemorrhage may result from torsion of the pedicle, injury, rupture, erosion of blood vessels, or ulceration. If it is small in amount, it will give rise to no symptoms; but if copious, there will be an increase in the size of the tumor and symptoms of shock and acute anemia.

Inflammation and suppuration are the consequence of infection from the intestine, bladder, Fallopian tubes, or from tapping. They cause pain and tenderness over the tumor and fever. Irregular chills, fever, and sweats are indicative of suppuration.

Rupture may be sudden from an injury or fall or may result from a gradual change in the cyst wall. It occurs either into the peritoneal cavity, one of the abdominal or pelvic viscera, or through the abdominal wall. If into the peritoneal cavity, as is usual, and the fluid is unirritating, it may be followed only by a profuse diuresis. Even when the cyst contents are hemorrhagic, it may give rise to no serious symptoms. Should the cyst contain pus or be a dermoid,

peritonitis is caused. If it is a proliferating papillary cyst, infection of the peritoneum occurs. Should rupture occur into any viscus, there will be symptoms referable to that particular organ and the passing of the cyst contents from it. Rupture is said to occur in from eight to ten per cent of cases.

Torsion of the pedicle occurs in about ten per cent of cases, and most frequently in dermoids. There may be any degree of twisting, from a half turn to several complete turns. It may be caused by a change in position, exercise, peristaltic intestinal movements, filling and emptying of the bladder, etc. The effects depend upon the amount of obstruction to the circulation. It may occur gradually, without giving rise to pronounced symptoms; or it may occur suddenly, and cause sudden and severe pain, enlargement of the tumor, and incessant vomiting. If the twist is not relieved, it may lead to inflammation and suppuration, rupture, hemorrhage, ascites, peritonitis, or gangrene of the cyst.

In more chronic cases there will be continuous pain, enlargement of the cyst, and a gradual deterioration of health.

Intestinal obstruction may be caused by direct pressure of the tumor, by adhesions, by involvement of the intestines in a twist of the pedicle, or may result from rupture or puncture of the cyst when it has become adherent to the intestines, the

collapse of the cyst causing distortion of the gut and consequent obstruction.

Cancerous degeneration is said to occur in at least one-fifth of all ovarian tumors.

Ascites is often present, but is rarely abundant, except in cases of torsion of the pedicle, peritonitis, rupture, or malignant degeneration.

Peritonitis is caused occasionally by friction and consequent irritation of the tumor or from torsion or rupture. Adhesions are likely to form which complicate the condition.

Diagnosis.—When the tumor is small and confined to the pelvis, its presence can be determined by a bimanual examination. If not larger than a hen's egg and not bound down by adhesions, it is usually found behind the uterus, but may be anterior or lateral to it. As the tumor enlarges, the uterus will be displaced by it. If pedunculated, the movement of the tumor has but little or no effect upon the uterus. Small tumors feel firm, circumscribed, and can be felt as bodies separate and distinct from the uterus, especially by a recto-abdominal examination. When developing between the layers of the broad ligament, the growth is not so movable, spherical, or circumscribed.

As growth continues, on abdominal palpation an enlargement may be felt in the iliac fossa. It may be round and smooth or nodular, and gives a sensa-

tion of elasticity. It is mobile, and is dull on percussion. As the tumor rises out of the pelvis, the abdomen enlarges, beginning in the iliac fossa and finally becoming general.

Small tumors must be differentiated from hydro-salpinx, pyo-salpinx, extra-uterine pregnancy, cellulitis, peritonitis, and hematoma.

In hydro-salpinx there is a history of previous inflammation and a sausage-shaped or gourd-shaped tumor; in pyo-salpinx there are added to these tenderness and evidences of inflammation in the surrounding pelvic tissues, as thickening of the tube and adjacent structures.

Extra-uterine pregnancy gives the usual symptoms of pregnancy, attacks of sudden and violent pelvic pain, often a slight bloody discharge, and expulsion of the decidual membranes.

Cellulitis and peritonitis have a history of inflammation; the swelling is produced more rapidly, is immovable, and is more diffuse.

Hematoma is sudden in appearance, is accompanied by symptoms of shock and hemorrhage, and soon disappears by absorption.

So many mistakes have been made by eminent diagnosticians in ovarian tumors that a diagnosis should always be guarded. The conditions with which larger tumors have been confused and their distinctive symptoms are as follows:

Pregnancy.—In this condition there are the usual sympathetic symptoms of pregnancy, menstruation is suppressed, the abdomen enlarges rapidly, the general health is good, fluctuation is absent, and after the fifth month the fetal heart sounds and movements are pathognomonic of the condition. When pregnancy is complicated by an ovarian cyst, the diagnosis is more difficult.

Uterine fibroids are of slow growth, hard, nodular; are intimately connected with the uterus, so that movement of the tumor causes the uterus to move; the uterine cavity is usually deepened; and fluctuation is absent in uncomplicated cases. If cystic degeneration of a fibroid occurs, the diagnosis may be impossible.

Ascites has a history of some causative condition; no tumor can be palpated; the abdomen is flattened in the dorsal position; there is dullness in the flanks, which changes with the position of the patient; the uterus is freely movable, but little, if at all, displaced; and fluctuation is easily elicited.

Tumors of nearly every abdominal organ have been mistaken for ovarian tumors, and a diagnosis should not be made until by a careful examination the presence of tumors of the abdominal organs is eliminated.

Course and Prognosis.—Spontaneous cure has resulted from calcification of the cyst wall or from

rupture or torsion of the pedicle. From seventy to eighty per cent of proliferating cysts prove fatal by the end of four years; while, on the other hand, a patient may have an ovarian cyst for a number of years without great deterioration of the general health. A number of cases of small ovarian cysts and several large ones have been reported cured by osteopathic means.

Treatment.—The first indication is to remove all osteopathic lesions. The cyst may be treated directly, and in the case of small ones much can be accomplished by bimanual treatment. Particular attention should be given to the return circulation from the pelvis. The tumor, if in the pelvis, should be loosened by moving it in different directions, and gentle pressure may be made upon it if the diagnosis of a simple cyst can be made. The rupture of such is usually devoid of disagreeable symptoms, but the rupture of a proliferating papillary or a dermoid cyst would be very disastrous.

The general health should receive attention and be improved as much as possible.

If persistent treatment is unavailing, surgical means should be employed. The complications of torsion, rupture of a dermoid, suppuration, etc., would also render surgical procedures imperative.

Fibroid tumors of the ovaries are rare; are small in size, but may sometimes reach a very large size. They have the same physical characteristics as fibroids of the uterus, and are liable to the same changes and complications. They are usually unilateral.

They are more painful than similar tumors of the uterus, ascites develops earlier in their course and more frequently, and they are in most instances freely movable.

A diagnosis from a pedunculated subserous uterine fibroid is difficult unless both ovaries can be palpated, when, of course, an ovarian tumor is eliminated.

The prognosis and treatment is similar to that for fibroid tumors of the uterus.

A sarcoma of the ovary is also rare. It may be primary or a secondary change in an ovarian cyst. It occurs usually in young persons.

The diagnosis is difficult. A sarcoma is of more rapid growth than a fibroid, and is to be suspected when an ovarian cyst grows rapidly in a short time.

A carcinoma is also rare, particularly as a primary growth. It may be secondary, as a malignant degeneration of an ovarian cyst or as an extension from some other organ, the uterus usually. When

primary, it is usually bilateral. It rarely grows larger than an adult head.

A carcinoma of the ovary is characterized by rapid growth, pain, edema of the legs, ascites, metastatic growths, peritonitis, and cancerous cachexia.

The prognosis and treatment of sarcomata and carcinomata of the ovaries is similar to that for similar affections of the uterus.

CHAPTER XIII.

Diseases of the Fallopian Tubes.

ACUTE SALPINGITIS.

This is an inflammation of the Fallopian tubes, and occurs in a catarrhal and a purulent form. It is not an uncommon affection, and occurs during the time of sexual activity.

Cause.—Salpingitis is practically always secondary to disease of the uterus, and results from an extension of the uterine disease along the continuous mucous membrane of the uterus and the tubes. In some cases the salpingitis is coincident with, rather than secondary to, the uterine disease. It may be said that the etiology of endometritis and salpingitis is identical.

The purulent form, the most severe and dangerous, results in nearly every instance from gonorrhoea or puerperal infection, though it may be caused by infection during an instrumental examination or an operation, and it is possible for a ca-

tarrhal salpingitis to be infected and become purulent.

Malformations or deformities of the tubes or previous attacks of inflammation predispose to the disease.

Pathology.—In acute catarrhal salpingitis the inflammation is confined almost entirely to the mucous membrane. Its folds become swollen, congested, and infiltrated with new cells. The epithelium is swollen, some of it is thrown off, and the normal secretion of the tube is increased. The increased secretion usually drains into the uterus, occasionally through the fimbriated extremity into the peritoneal cavity; but should the openings of the tube become occluded, it accumulates, causes distention of the tube, and a hydro-salpinx is formed. An acute catarrhal salpingitis may become chronic.

In purulent salpingitis the inflammation is more severe and extensive. The inflammation begins in the mucous membrane, but soon involves all the structures in the tube walls. The epithelium is thrown off, the walls of the tube are infiltrated with serum and pus cells, and the fimbriated extremity is closed by adhesions of inflammatory lymph. The tubes are swollen, distorted, and adherent to the surrounding tissues as a consequence of the plastic exudate formed from an extension of the

inflammation to their peritoneal coverings. The tubes may be divided into separate cavities by the formation of adhesions within their lumen or by external adhesions constricting them. They are filled with a muco-purulent material, which, if the os uterinum remains open, may drain into the uterus, or it may accumulate in the tube and form a pyo-salpinx or leak into the peritoneal cavity and cause a peritonitis. This form of inflammation may also become chronic; but even should it not do so, the tube remains crippled, and is never as capable of performing its function as before.

Chronic salpingitis, or interstitial salpingitis, may result from either of the preceding forms. It is caused by the infiltration of the tube walls by the products of inflammation and their organization into connective tissue. It usually leaves the tubes enlarged and distorted by adhesions and one or both (os abdominale usually) of its openings closed and its epithelium diseased or desquamated. A hydrō-salpinx or a pyo-salpinx is not infrequent.

The greatest danger of all forms of salpingitis is an extension to the peritoneum. This may occur by an extension of the inflammation directly through the walls of the tube or by the passage of the contents through the ostium abdominale. In rare cases it may take place from the rupture of a distended tube. The ovary is usually involved, and

may be the seat of one or more abscesses. If no more serious consequences result, the tube, ovary, and often the intestines, are matted together by adhesions.

Symptoms.—In the acute cases these are masked by the accompanying uterine affection. Considerable catarrhal, or even purulent, inflammation of the Fallopian tubes may exist without giving rise to marked symptoms.

A peculiar colicky or burning pain in the iliac region of the affected side is often experienced. It is more severe at the menstrual period, and is increased by exercise, and especially by coition.

The intermittent discharge of a muco-purulent fluid from the vulva is a very suspicious symptom. This is caused by the discharge of an accumulation of fluid in the Fallopian tube. It is also sometimes caused by an accumulation in the uterus or the vagina.

Leucorrhoea is present, and the menstrual disturbances of endometritis. The general health deteriorates, there is loss of flesh and strength, and there is slight fever at times, particularly if the salpingitis be purulent.

Should the ovary be involved, there will be added the symptoms of ovaritis.

For a diagnosis we must depend largely upon a physical examination. The tubes are swollen, ten-

der, distorted, adherent; and if filled with fluid, a pear-shaped tumor will be found. If they cannot be felt, a line of tenderness along their course is present, and tenderness will be caused by pressing the uterus toward the diseased side. If not involved, the ovary can be felt free of adhesions, tenderness, and swelling. As it is almost invariably more or less affected, it will be found swollen, tender, involved in adhesions, and matted to the tubes.

A recto-abdominal examination is of aid in making a diagnosis.

Prognosis.—If the disease be of the catarrhal type, the prognosis as to health is good, but sterility may result as an effect of the disease upon the tubes. The purulent variety sometimes proves fatal from involvement of the general peritoneal cavity or from gradually increasing invalidism. Sterility is a common sequence of this form. Should the patient recover, she is predisposed to other attacks.

Treatment.—In the acute stage the treatment is that of acute endometritis; in the chronic stage it is often advisable to confine the patient to bed for two or three weeks.

In no case should local treatments be given until all acute symptoms, particularly fever, have subsided; and in every case, whether of examination or treatment, in which a tumor is situated in the pelvis that may possibly be caused by salpingitis,

all manipulations must be toward the uterus to prevent forcing any of the contents into the peritoneal cavity.

In chronic cases the treatment outlined for chronic endometritis is indicated. Especial attention should be given to the relaxation of adhesions about the tubes and ovaries, the manipulations always being such as will force the tube contents in the direction of the uterus.

HYDRO-SALPINX.

This is the accumulation of a fluid which is neither purulent nor bloody in the Fallopian tube. It is usually caused by a catarrhal salpingitis, the closure of both tubal openings, and the collection of the secretions of the tubal mucous membrane. The ostium abdominale is usually first to close, and fluid may accumulate when the ostium uterinum is only partially closed.

The condition is bilateral, as a rule, and the tumor is rarely larger than an orange, though in exceptional cases it may reach the size of a fetal head. It has thin walls, is slow in development, and frequently is movable.

When a hydro-salpinx does not reach an extreme size, it rarely gives rise to symptoms. When symptoms are produced, they are referable to the associated peritonitis and pressure.

On a bimanual examination, a sausage-shaped, sometimes tortuous, tumor is detected in Douglas' pouch, distinct from the uterus and extending from the uterine cornua outward. Fluctuation can sometimes be detected; and if the ovary on the affected side is free, the diagnosis is more certain.

Hydro-salpinx is most frequently mistaken for an ectopic gestation, an ovarian cyst, or a pyo-salpinx.

In ectopic gestation there are the symptoms of pregnancy, a sudden and severe pain, perhaps the discharge of blood and the decidual membranes from the uterus, and the continued growth of the tumor. An ovarian cyst is spherical in outline; the ovary is not free, but is enlarged; and there is no connection between the tumor and the uterus.

PYO-SALPINX.

This is the accumulation of purulent material in the Fallopian tube. It follows purulent salpingitis, the agglutination of the fimbriated opening, and frequently also the uterine opening of the tube.

Pyo-salpinx does not reach the extreme size of the largest hydro-salpinx, but grows more rapidly, and is attended by more or less peritonitis; hence the greater pain. The tube walls are thickened, but may be weakened by dilatation or disease; so that the possibility of rupture, peritonitis, and death is ever present. Rupture may occur into one of the

pelvic organs, into the peritoneal cavity, or externally, but always with serious consequences.

The enlarged, distorted, tender, and perhaps fluctuating, tumor may be felt low down in Douglas' pouch, usually immovable as a result of adhesions.

The symptoms are vague pelvic pains and distress, failure of general health, or recurring attacks of slight peritonitis, with fever and slight chilly sensations or rigors.

The differentiation from ectopic gestation and ovarian cysts is similar to that of hydro-salpinx. From hydro-salpinx it is differentiated by a history of puerperal or gonorrhoeal infection, greater constitutional disturbance, fixedness, tenderness, and occasional febrile attacks.

HEMATO-SALPINX.

This is a collection of blood, or hemorrhagic material, in the Fallopian tube. It may result from hemorrhage into a hydro-salpinx or a pyo-salpinx, the accumulation of menstrual blood, or hemorrhage from other causes in a closed tube.

It is of rare occurrence, unilateral, and often accompanied by a bloody discharge from the uterus. Its differentiation from hydro-salpinx is very difficult.

Treatment.—The osteopathic treatment of these conditions depends upon the patency of the os uteri-

num. If this remain open, gentle strokings of the tube toward the uterus will empty the tube and effect a cure. Such manipulations must be very gentle; and if the contents of the tube do not appear after a few treatments of this kind, the treatment must be stopped. If the case be one of pyo-salpinx, surgical measures should be used for its removal; also in cases of hydro-salpinx or hemato-salpinx when they cause troublesome pressure symptoms.

CHAPTER XIV.

Diseases of the Tissues of the Pelvis.

PELVIC PERITONITIS.

This is an inflammation of any part of the peritoneum lining the cavity of the true pelvis or covering the pelvic viscera.

Causes.—Pelvic peritonitis is nearly always, if not always, secondary to disease of some pelvic organ, a purulent salpingitis in most instances.

A severe endometritis may extend directly through the uterine walls or may infect the peritoneum after first involving the connective tissue or lymphatics.

Rupture of an ovarian abscess or a tubal abscess or a tubal pregnancy may be the cause. Instrumental examinations or operations are not infrequent causes; and in rare cases menstrual disturbances, as suppression from exposure to cold and wet, may result in peritonitis.

The irritation of the retro-displaced uterus rub-

bing against the peritoneum over the posterior pelvic wall has produced a localized peritonitis. Tubercular pelvic peritonitis is usually secondary to similar disease of the tubes.

A predisposing cause, by decreasing the normal tissue resistance, is pelvic congestion, which results from osteopathic lesions, uterine or ovarian displacements, excessive venery, etc.

Pathology.—The disease may be acute or chronic, and appears in a fibrinous, a serous, and a suppurative form, according to its severity.

The first stage of a fibrinous peritonitis is congestion, the exfoliation of the endothelium, and the pouring out of a plastic exudate by which adhesions are formed, which may result in the matting together of tube, ovary, omentum, or part of the intestine into one mass. These adhesions frequently limit the inflammation and prevent the infection of the general peritoneal cavity. This exudate may become organized into permanent adhesions, which may cover the ovary, cause constriction and distortion of the tube, and even displacement of the uterus, but rarely ever are so firm and unyielding as the adhesions following cellulitis.

In the serous form a fluid exudate predominates. If moderate in amount, it gravitates to Douglas' pouch, or it may be sufficient to fill the entire pelvis. If the uterus is not fixed by adhesions, it

will be displaced forward by the fluid behind it; but if fixed, the exudate may be in front of, or even above, it.

The whole of the fluid may be absorbed and a cure result or may be only partially absorbed, there being sufficient plastic material to form adhesions. Occasionally a serous exudate in some way becomes infected, and a suppurative inflammation results.

In suppurative peritonitis the focus of suppuration is usually limited by adhesions, so that the occurrence of general peritonitis is rare. The suppurating area, or abscess, may open into some of the pelvic viscera or the peritoneal cavity, or it may pass through a sinuous tract and open externallly.

Symptoms.—In acute pelvic peritonitis there is sudden pain, referable to the pelvis, which often radiates down the thighs. It may be moderate in severity, but is at times excruciating. There are chilly sensations or a decided chill, a rise of temperature, accelerated pulse, and nausea and vomiting. The hypogastrium is tender, distended, and vesical and rectal tenesmus are frequently present.

The expression is one of anxiety. Delirium is not uncommon.

The pain and temperature are very variable symptoms. Pain may be almost entirely absent; the temperature may be normal, subnormal, or change from high to low degrees in a short time in very dangerous cases.

Suppuration is usually indicated by irregular chills, fever and sweats, and a slight yellow tinge to the skin; but it may be present in the absence of these symptoms.

Chronic peritonitis may develop so insidiously as to seem chronic from its beginning, which in some cases may be true. The patient is up, but suffers from menstrual derangements, particularly amenorrhoea, menorrhagia, or leucorrhoea, and has constant pelvic pain and heaviness, which is aggravated by exertion, jolting, or coition. As the menstrual period approaches, the pain and discomfort increase. Recurrent acute attacks sufficiently severe to confine her to bed are occasional. These attacks are provoked by exertion, exposure to cold and wet, too violent or too frequent intercourse, and are very likely to occur near or during the menstrual period.

There is a gradual failure of the general health and the development of nervous or hysterical tendencies.

Physical Signs.—Should pus be suspected, the vaginal examination must be carefully and gently made for fear of causing an extension of the trouble by severing the newly-formed adhesions. During the first stage only exquisite tenderness of the vaginal vault and pain on movement of the uterus will be found. Later on, as serum or pus accumulates,

a soft, sometimes fluctuating, tumor will be felt in Douglas' fossa, which displaces the uterus anteriorly. If the serum is absorbed, the vaginal vault becomes hard and indurated; and the agglutinated tubes, ovaries, omentum, and intestine may be felt as a sensitive tumor at the side of or behind the uterus. In all cases the mobility of the uterus is impaired.

When the case becomes chronic, there is tenderness; the agglutinated tubes, ovaries, and intestinal coils can be felt at the side of or behind the uterus; while in other cases the pelvic floor is so tender and indurated that the individual organs cannot be outlined.

Pelvic peritonitis is most often mistaken for cellulitis, salpingitis, or hematocele.

Cellulitis occurs usually after parturition, abortion, or an operation on the pelvic organs. The symptoms are less severe; the tumor is not so large, and is situated close to the side of the uterus; and if the disease extends, the swelling and tenderness remain along the walls of the pelvis, where the connective tissue is located.

Salpingitis causes a sausage-shaped tumor, often bilateral, and can be felt running from the cornua of the uterus outward.

Hematocele appears more suddenly. The first symptoms are those of hemorrhage rather than in-

flammation, while the tumor is soft at first, and then becomes hard.

In some cases the differentiation is impossible.

Course and Prognosis.—Pus in the pelvis is a menace to life. When the disease is adhesive or serous, infection may occur; but the prognosis is better than when the trouble is primarily suppurative. If extensive adhesions form, constricting and deforming the tubes and covering the ovary, there is but little hope that the function of these organs will be restored; but there are good prospects of relieving the patient from chronic invalidism and enabling her to become an active woman.

Treatment.—In the acute cases absolute rest is imperative. Pain must be relieved by inhibition of all centers having a sensory connection with the pelvis and by the proper use of hot or cold applications. In the acute stages cold applications seem to have a better antiphlogistic effect, and an ice poultice may be applied to the hypogastrium and a continuous current of cold water run through the vagina. This is accomplished by the use of a continuous-flow vaginal syringe, beginning with water of moderate temperature and gradually decreasing it until the desired temperature is reached. If the cold does not give relief or is not well borne, hot applications may be made in the same manner. The diet should be liquid and sustaining.

Elevations of temperature are controlled by the ordinary osteopathic and hydropathic means. Gentle manipulations of the extremities, legs especially, will have a derivative effect and quiet the patient.

When the case becomes chronic and the pelvic viscera are matted together and fixed by adhesions, the indications are for relaxation and absorption of adhesions, separation of adherent organs, and the restoration of mobility.

In accomplishing these ends, bimanual treatment is of first importance. It should be supplemented by removal of lesions, equalization of circulation by inhibition of the lower dorsal and lumbar regions, deep-breathing exercises, general treatment, and baths. The latter should not only be general, but warm Sitz baths, with the use of the vaginal bath speculum, are especially to be recommended.

If pus is present and causing symptoms, the indications are for its evacuation, for which surgical measures are to be employed.

PELVIC CELLULITIS.

This is an inflammation of the subperitoneal connective tissue of the pelvis. This tissue is most abundant around the lower portion of the uterus, in the broad and sacro-uterine ligaments, and between the cervix and the bladder; and it is in these situations that the disease is most frequently lo-

cated. These locations are also more exposed to violence and infection.

Cellulitis occurs in an acute and a chronic form.

Causes.—Acute cellulitis may result from the injuries following parturition or abortion, lacerations of the cervix extending to the connective tissue, endometritis by direct extension through the uterine walls, injuries from operations or instrumental examinations, or too violent coition. It has in rare instances followed exposure to cold and wet.

Continued pelvic congestion—as results from osteopathic lesions, displacements or disease of the pelvic organs, excessive sexual indulgence or excitement—not only predisposes to acute attacks, but is an actual cause of chronic cellulitis.

Pelvic congestion is engorgement of blood vessels. This, if continued, is followed by extravasation of serum and white blood cells and proliferation of connective tissue. This tissue undergoes a secondary contraction, a process similar to that seen in cirrhosis of the liver. Chronic cellulitis is also caused by single or repeated acute attacks.

Pathology.—During the first stages the connective tissue is swollen and infiltrated with serum and small, round cells. Resolution may occur in two or three weeks and recovery take place; but should there have been a preëxisting congestion, resolution is not complete, the effused serum and cells undergo organization, and the case becomes chronic.

Again, the inflammation may proceed to suppuration, in which one large pus cavity or several small pus cavities may develop.

In chronic cellulitis, following the contraction of the hyperplastic connective tissue, cicatricial bands are formed either around the cervix or along the course of the broad, sacro-uterine, or utero-vesical ligaments. As these bands contract, various uterine displacements are produced, according to the direction in which the organ is drawn. The cervical ganglion is involved in the formation of the cicatricial tissue, and to this is no doubt due the long train of reflex disturbances that so frequently follow displacements. The pelvic blood vessels, the veins especially, are constricted by the adhesions; they become tortuous and dilated; serum and white blood cells are extravasated; and these, in turn, proliferate and form new tissue; so that the trouble is progressive and leads to congestion and pathological changes in all the pelvic structures.

These connective tissue adhesions are a much more prolific source of displacements of the uterus than peritoneal adhesions, for the reason that the peritoneum is movable and does not so frequently anchor the uterus, and its adhesions are not so firm and are much more easily stretched than those formed of connective tissue.

Occasionally, as a result of chronic suppurative

cellulitis, collections of pus are formed, which may remain in the pelvis or open by sinuous fistulae.

Symptoms.—In the acute stages these are not so severe as in peritonitis. Pelvic pain is present, but is not so sudden in its onset or so severe as in peritonitis. An initial chill is frequent. There is a rise of temperature and an accelerated pulse. Irritability of the bladder and rectum may be present. Nausea and vomiting are not so common as in peritonitis, and distention of the abdomen is rare. There are the usual accompaniments of fever—malaise, anorexia, headache, etc.

In the chronic cases there are the evidences of displacement, pain, bearing-down sensations, frequently constipation and vesical irritability, and the train of diverse nervous symptoms seen with displacements.

Physical Signs.—In the early stage of the acute trouble a vaginal examination reveals increased heat, tenderness, and a diffuse boggy tumor, usually at the side of the uterus, which is displaced toward the oposite side. There may be a tumor on either side of the uterus connected by a swollen band in front of and behind the cervix. If the connective tissue in the sacro-uterine ligament is affected, the tumor will be behind the uterus, which will be displaced anteriorly; and if along the utero-vesical ligament, the tumor is anterior, the displacement posterior.

Should pus form, the swelling becomes softer, though fluctuation is rarely detected. Movements of the uterus are painful.

In the chronic form the uterus is found displaced toward the side on which the tumor was primarily located. It is fixed by adhesions which, on careful bimanual examination, can be felt. Attempts at moving the uterus stretch the adhesions and cause pain. Recto-abdominal examination is often of great service.

Prognosis.—Life is rarely threatened in cases of cellulitis unless extensive suppuration develops, which is, fortunately, a rare occurrence. In the chronic form the adhesions are often firm and unyielding, and the displacements and nervous symptoms resulting are sometimes very obstinate and may require several months' treatment. All cases can be benefited, the majority being entirely relieved.

Treatment.—This, in acute cases, is identical with the treatment of acute peritonitis. The indications for surgical measures are the same.

In the chronic cases the treatment must be directed to the restoration of mobility and the relaxation of adhesions. Owing to the firmer structure and larger size, the connective tissue adhesions require more persistent treatment than those formed of peritoneum.

The same measures used for the cure of chronic peritonitis will be necessary in chronic cellulitis. Patience and persistence will be necessary in relaxation of adhesions and correction of displacements.

PELVIC HEMORRHAGE.

Free hemorrhage, or hemorrhage into the peritoneal cavity and limited by adhesions, is called "hematocele;" hemorrhage beneath the peritoneum and into the pelvic connective tissue is called "hematoma."

Causes.—Hematocele is caused in most instances by the rupture of a tubal pregnancy. Among the less frequent causes are rupture of a hemato-salpinx, torn peritoneal adhesions, intra-peritoneal rupture of a hematoma, excessive bleeding from a Graaffian follicle, which is usually itself caused by violent exercise, coition, or exposure to cold or wet near or during the menstrual period. Constitutional diseases, accompanied by blood dyscrasia, may in rare instances be causative.

The escaping blood gravitates to Douglas' pouch. If the bleeding is very sudden and profuse, death may occur in a short while. This, however, is unusual; for, as a rule, the hemorrhage is not sufficient to cause immediate death; but its presence causes an adhesive peritonitis, by which adhesions are formed between the intestinal coils, and the

blood is walled off from the general peritoneal cavity. The blood may fill the recto-uterine pouch or may rise to or above the brim of the pelvis. At first the blood is thin, but it soon coagulates, and its liquid constituents are absorbed, so that it becomes thick and dark.

Symptoms.—There may be premonitory symptoms, referable to the cause of the hemorrhage, or the onset may be sudden and unexpected. It begins with sudden pelvic pain, faintness, prostration, nausea or vomiting, rapid and weak pulse, pallor, cold extremities, anxiety; and if the hemorrhage is profuse, dyspnoea and vertigo will be present. Tympanites will be caused by the intestines being floated up by the blood. A feeling of pressure and heaviness in the pelvis is common. If the amount of the hemorrhage is large, rectal and vesical irritability will be caused, also pressure symptoms of pain or edema of the legs.

Following this attack, within from twenty-four to forty-eight hours there will be a rise of temperature, and usually a chill. This is due to inflammatory reaction, and lasts but a short while. Absorption of the blood clot may now take place, or the more unusual and more dangerous complication of infection and suppuration may occur.

In some cases bleeding occurs so gradually and slowly as not to give rise to acute symptoms.

Physical Signs.—Before the encapsulation or coagulation of the blood the physical signs may not be distinct. On vaginal examination there is a sense of resistance in the recto-uterine fossa, the uterus is pushed forward, and the abdomen is tympanitic. After encapsulation or coagulation, a tumor, which seems to be molded into the recto-uterine space, will be felt, which, with the preceding symptoms, will usually make the diagnosis clear. In those cases in which Douglas' pouch is closed by adhesions the tumor may be anterior to or above the uterus.

Hematoma is hemorrhage into the connective tissue, usually that between the layers of the broad ligament. Its causes are very similar to those of hematocele, tubal pregnancy being less frequently and violence more frequently a cause. Pelvic congestion, and the consequent engorgement of the blood vessels ramifying in the connective tissue, is an important predisposing cause.

The amount of hemorrhage is less, owing to resistance of the connective tissue; coagulation is not so rapid, and secondary inflammation is not so severe, as in hematocele.

The symptoms are of much the same nature, but less violent than in hematocele.

Physical Signs.—On examination, a distinct tumor is felt at the side of the uterus and in the anterior

segment of the pelvis, and the uterus is displaced and immobilized. If the bleeding is bilateral, a tumor will be felt on each side and connected around the cervix. In this case the uterus will be displaced upward. If a rectal examination be made, it will be found that the infiltration of blood into the connective tissue has caused an apparent stricture of this organ.

Prognosis.—Should the hemorrhage be free into the peritoneal cavity, death may occur from shock, anaemia, or peritonitis. In encapsulated hematocele, recovery usually occurs in a few weeks or as many months. In hematoma the prognosis is still more favorable, owing to the smaller amount of hemorrhage and its extra-peritoneal situation.

Suppuration may occur in either case and greatly retard recovery or prove fatal.

Treatment.—No time should be lost in undressing the patient; but she should at once be put into a comfortable lying position, with her head low. Absolute quiet and inactivity are to be enforced; ice bags are to be applied to the hypogastrium, a continued current of cold water to the vagina, and hot applications to the extremities. These may be removed as soon as reaction is somewhat established, but the patient should be kept quiet for several days. Let the diet be liquid.

If the case be diagnosed as intra-peritoneal rup-

ture of a tubal pregnancy, operative measures are indicated; but if the hemorrhage be due to some other cause and there is no additional hemorrhage after three or four weeks, general treatment, warm general and Sitz baths may be given to promote absorption. After absorption is complete, any remaining peritoneal adhesions may be relaxed by bimanual treatment.

In the event of suppuration the pus should be evacuated.

CHAPTER XV.

Ectopic Gestation (Extra-uterine Pregnancy).

This is the fixation of a fertilized ovum without the uterine cavity. It is estimated that it occurs once in every four or five hundred pregnancies.

Causes.—Its cause is not absolutely known. It is believed that under normal conditions the fertilization of the ovum occurs near the ovarian end of the Fallopian tube, from which place it is carried to the uterine cavity by the cilia of the tubal epithelium. Consequently any condition of the tube or its mucous membrane which will hinder the passage of the ovum to the uterus will cause ectopic gestation. Such conditions are stenosis or angles in the tube, chronic salpingitis, with loss of epithelium or its cilia. Some eminent authorities claim that investigation has proven that a perfectly healthy tube is more likely to become the seat of an ectopic gestation than one which has been inflamed. However this may be, it is true that the disease often follows

a period of sterility, and frequently there is a history of previous trouble on the side upon which the tube becomes gravid.

Ectopic gestation, or tubal pregnancy, is limited to no particular age within the childbearing limits and may occur with the first or any subsequent pregnancy. In rare instances a uterine pregnancy has been complicated by a tubal pregnancy, or both tubes have been found pregnant, or a second tubal pregnancy has been found several years subsequent to a first pregnancy. In still rarer instances the tube has been found to be the seat of a twin pregnancy.

According to the location of the ovum, two varieties of ectopic gestation are recognized:

1. Tubal, when the ovum is situated beyond the cornua of the uterus.

2. Interstitial, when within that part of the tube traversing the uterine walls.

The first of these varieties is by far the most frequent and important.

These varieties have been much subdivided by some writers.

As a result of the implantation of the ovum, the tube walls thicken by hypertrophy of their muscular structure; but as the fetus develops, they are thinned by distention and weakened by the ingrowth of the villi of the chorion. As these changes are progressing, the ostium abdominale is gradually

closing until about the eighth week, when in most cases it is completely closed. In a few instances dilatation occurs. The os uterinum remains open.

As the fetus develops, the tension within the tube increases. If it be located near the fimbriated extremity, the fetus may pass into the peritoneal cavity before the closure of the tube. This constitutes tubal abortion. After the closure of the ostium abdominale, rupture is inevitable and occurs between the third and twentieth weeks of pregnancy, usually between the sixth and twelfth weeks. The rupture may take place through that part of the tube covered with peritoneum, in which case it is intra-peritoneal, or into the peritoneal cavity; or it may occur between the layers of the broad ligament, in which case it is extra-peritoneal, or without the peritoneal cavity.

The immediate cause of the rupture is often a jar or jolt, straining, lifting, vaginal examination, or coition. In many cases no such exciting cause is found.

With the lodgment of the ovum begins the development of the amnion, the chorion, and the fetal part of the placenta, the decidua vera developing in the uterus as though the pregnancy were normal. Owing to the abnormal and insecure attachment of the ovum to the tubal mucous membrane, hemorrhage often occurs into the fetal membranes, which

causes separation of the chorionic villi and the death of the fetus either before or after rupture of the tube. In this case a tubal "mole" is formed. In a few cases the separation of the chorion is not complete or it gradually changes its location by growth; a placenta is formed; and the fetus, having escaped from the tube, goes on to complete development. Under such conditions repeated hemorrhages are to be feared.

As a result of rupture, hemorrhage from the torn blood vessels occurs, which occasionally is sufficient to cause speedy death. If the rupture be intra-peritoneal, the blood gravitates to the recto-uterine space, where it coagulates and becomes encysted by peritoneal adhesions. If the rupture be extra-peritoneal, the blood is forced into the connective tissue of the broad ligament; and because of the resistance offered by this tissue the hemorrhage is not so profuse as in intra-peritoneal rupture, though in these cases a secondary rupture into the peritoneal cavity may occur.

With the rupture of the tube, the ovum usually escapes with the blood; or if the rent be small, it may close it up and prevent further hemorrhage. The rupture of the tube usually terminates the life of the fetus; but in some cases this is not so, and it goes on to complete development. When this occurs, labor sets in at term; but as the child cannot

be delivered in the natural manner, its death from placental separation occurs. After its death, one of several changes may take place in it: the liquor amnii will be absorbed, as likewise may be the fluids of the fetal tissues, causing it to mummify; or lime salts may be deposited in the tissues, and it will become calcified and form a lithopedion, in which state it may remain for years; or it may undergo a sort of fatty change and be converted into adipocere; or infection and suppuration may occur even a long while after the death of the fetus, an abscess may form, which may rupture into some of the pelvic or abdominal organs, or externally, and discharge the fetal structures.

Symptoms.—These are frequently vague and indefinite. There is, as a rule, a history of sterility for some time past or of a previous attack of endometritis. The usual symptoms and signs of pregnancy are present; menstruation has been passed for several days or weeks; or there has been only a show at the regular time, which has been followed by an irregular, dark discharge. The reflex symptoms of nausea and vomiting often begin early and are aggravated.

Pressure symptoms develop early upon the affected side. The patient may be unable to lie on this side; and cramplike pains, originating in the iliac fossa and radiating down the thigh, are fre-

quently present. The presence and prominence of this pain are strongly suggestive of ectopic gestation.

A slight rise of temperature is often present, and the patient's general health is more impaired than it should be in a normal pregnancy.

The patient may now have an attack of sudden, and often extremely severe, pain in one side of the abdomen, followed by faintness, prostration, pallor, rapid and feeble pulse, nausea or vomiting, dyspnoea, subnormal temperature, cold extremities, and a cold, clammy perspiration. These symptoms will depend in severity upon the amount of the hemorrhage, and may prove fatal in a few hours; or, as is usually the case, recovery from the attack occurs; but it may be repeated in a few days or weeks, with fatal results.

With these symptoms there is in most cases an irregular hemorrhage from the uterus and the passage of the decidual membranes.

Physical Signs.—Before rupture occurs, an examination reveals the uterus slightly enlarged and perhaps displaced laterally to a slight extent; the cervix is softened; and the os is patulous—these, with the exception of the displacement, being the signs usually seen in pregnancy. The distended tube—as large as a hen's egg or a lemon, sensitive, elastic, and sometimes pulsating—may be felt to the side of, or slightly posterior to, the uterus.

After rupture the physical signs are those of hematocele or hematoma, according as the rupture was intra-peritoneal or extra-peritoneal.

Diagnosis.—Before rupture an absolute diagnosis is difficult, but the following are strongly presumptive evidences: The signs and symptoms of pregnancy, with early and aggravated reflex symptoms following a period of sterility; severe, cramplike pains in one side of the pelvis; departure, though slight, from the usual menstrual habit in regard to character, amount, or duration; and the absence of a history of gonorrhoeal or puerperal infection. Now, should the expulsion of the decidua from which the chorionic villi are absent, occur, the diagnosis is certain.

At the time of rupture there is added to the history given above sudden and severe pelvic pain, with the symptoms of shock and hemorrhage and the physical signs of hematocele or hematoma.

Ectopic gestation is sometimes mistaken for a pyo-salpinx, a normal pregnancy with a fibroid tumor; and at the time of rupture, if the symptoms are not severe, it is mistaken for an ordinary abortion.

In pyo-salpinx the history and signs of pregnancy are not often present; the tumor is not so vascular or boggy and does not pulsate. After rupture there is no fall of temperature, but a steady

rise; the pain continues for a long time; there are no indications of a loss of blood; and septic symptoms soon develop.

In pregnancy with a fibroid tumor the enlargement is less sensitive, harder, the uterus is enlarged proportionate to the stage of pregnancy; pain is absent until the tumor assumes large proportions and causes pressure on the surrounding organs; and symptoms of rupture do not occur.

At the time of rupture the patient often believes herself pregnant, and the pain and menorrhagia lead her to believe that an abortion has taken place. She may continue to believe so until the occurrence of another hemorrhage. This mistake need not be made if the discharged decidua can be submitted to a competent microscopist. If the chorionic villi are found absent and a tumor is present at the side of the uterus, the diagnosis of ectopic gestation should be made. If the decidua cannot be obtained, a vaginal examination should be made; and if the tube is found swollen, tender, and elastic, the physician should be on his guard.

Prognosis.—If unmolested, about two-thirds of all cases die. The remaining one-third who recover are frequently left chronic invalids.

Treatment.—At the time of rupture the treatment is identical with that of hematocele. If a diagnosis of extra-peritoneal rupture can positively be made,

the further treatment is that of hematocele; but if the hemorrhage is intra-peritoneal, surgical measures to ligate the bleeding vessels and remove the ruptured tube and products of conception should be resorted to as soon as the patient has sufficiently recovered from the shock.

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